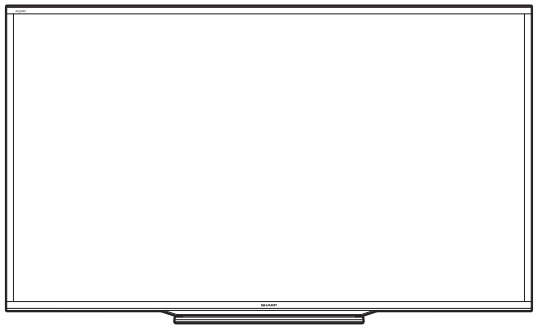
# SHARP SERVICE MANUAL

No. SY2A4LC90LE74



## LCD COLOR TELEVISION

## MODEL LC-90LE740X

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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**Parts Guide**

Parts marked with " ⚠ " are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

# SAFETY PRECAUTION

## IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:**

### ■WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.

**CAUTION**: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE REPLACE ONLY WITH SAME TYPE FUSE.

F7001 (250V 6.3A)

### ■BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

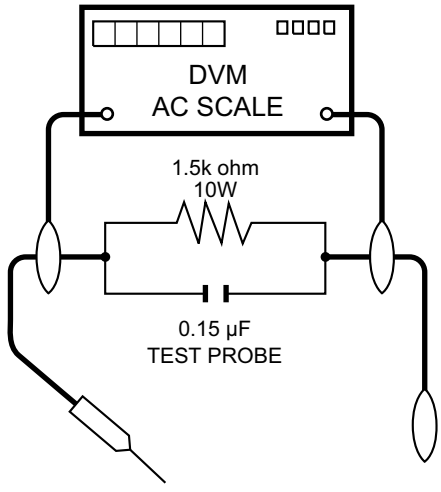
**Before returning the receiver to the user, perform the following safety checks:**

3. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
4. Inspect all protective devices such as non-metallic control knobs, insulation materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
5. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 110-240 volt AC outlet.
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to an earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity or measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

  All checks must be repeated with the AC cord plug connection reversed. (If necessary, a nonpolarized adaptor plug must be used only for the purpose of completing these checks.)

  Any reading of 0.75 Vrms (this corresponds to 0.5 mA rms AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.




## SAFETY NOTICE

Many electrical and mechanical parts in LCD color television have special safety-related characteristics.

These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by " ⚠ " and shaded areas in the Replacement Parts List and Schematic Diagrams.

For continued protection, replacement parts must be identical to those used in the original circuit.

The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire or other hazards.

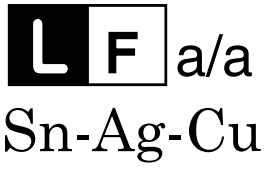
# PRECAUTIONS FOR USING LEAD-FREE SOLDER

## ■Employing lead-free solder

- "PWBs" of this model employs lead-free solder. The LF symbol indicates lead-free solder, and is attached on the PWBs and service manuals. The alphabetical character following LF shows the type of lead-free solder.

  Example:

Indicates lead-free solder of tin, silver and copper.




Indicates lead-free solder of tin, silver and copper.

## ■Using lead-free wire solder

- When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

  As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40 °C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

## ■Soldering

- As the melting point of lead-free solder (Sn-Ag-Cu) is about 220 °C which is higher than the conventional lead solder by 40 °C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

  Lead-free solder contains more tin, and the end of the soldering bit may be easily corroded. Make sure to turn on and off the power of the bit as required.

  If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

  When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

- Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing

| PARTS CODE | PRICE RANK | PART DELIVERY | DESCRIPTION |
|---|---|---|---|
| ZHNDAi123250E | BL | J | ϕ0.3mm 250g (1roll) |
| ZHNDAi126500E | BK | J | ϕ0.6mm 500g (1roll) |
| ZHNDAi12801KE | BM | J | ϕ1.0mm 1kg (1roll) |

# OUTLINE

## MAJOR SERVICE PARTS

### ■PWB Unit

| No. | PARTS CODE | DESCRIPTION |
|---|---|---|
| N | DKEYMF953FMJ6 | MAIN Unit |
| N | DUNTKF800FMF8 | KEY Unit |
| N | DUNTKF975FM18 | LCD CONTROL Unit |
| N | DUNTKG014FMF7 | EMBLEM Unit |
| N | DUNTKG015FMF7 | R/C LED Unit |
| N | DUNTKG017FMF7 | 3D IR Unit |
| N | RUNTKB096WJQZ | POWER/DRIVE UNIT |

NOTE: *1 Replace MAIN PWB Units (DKEYMF953FMJ6) in case of IC3104 failure.

### ■OTHER Unit

| No. | PARTS CODE | DESCRIPTION |
|---|---|---|
| N | B3KUV740X | 90" LCD PANEL MODULE Unit (R1LK900D3GW10V) |

### ■IC For Exclusive Use Of The Service

| No. | PARTS CODE | DESCRIPTION | Q'ty |
|---|---|---|---|
| IC2004 | RH-iXD241WJNQQ | IC (Monitor Microprocessor) | 1 |

### ■Service Jigs

| No. | PARTS CODE | DESCRIPTION | Q'ty |
|---|---|---|---|
| N | QCNW-C222WJQZ | Connecting Cord L=1000mm 80pins, LCD Control to LCD Panel | 2 |
| N | QCNW-M539WJQZ | Connecting Cord L=1200mm 24-24-4pins, POWER to LCD Control/POWER to Main (PD) | 1 |

# CHAPTER 1. SPECIFICATIONS

## [1] SPECIFICATIONS

### Specifications

| Item | | | LC-90LE740X |
|---|---|---|---|
| Resolution | | | 1,920 x 1,080 |
| Video colour system | | | PAL/SECAM/NTSC 3.58/NTSC 4.43/PAL 60 |
| TV function | TV-standard | Analogue | PAL ( B/G, D/K, I), SECAM ( B/G, D/K, K/K1), NTSC:(M) |
| | | Digital | DVB - T |
| | Receiving channel | VHF/UHF | 44.25-863.25 MHz |
| | TV tuning system | | Auto preset 02ch/07ch/09ch/10ch/28ch at Australia. |
| | STEREO/BILINGUAL | | NICAM ( B/G, I, D/K), A2 stereo (B/G), BTSC |
| Audio amplifier | | | 10 W x 2, 15 W x 1 (Woofer) |
| Terminals | ANT (Antenna input) | | UHF/VHF 75 Ω Din type |
| | RS-232C | | D-Sub 9 pin male connector |
| | PC | | 15 pin mini D-sub, AUDIO in (shared usage with HDMI2) (ϕ 3.5 mm jack) |
| | INPUT 1 (ARC) HDMI | | HDMI (HDMI input) (480I, 576I, 480P, 576P, 720P/50Hz, 720P/60Hz, 1080I/50Hz, 1080I/60Hz, 1080P/50Hz, 1080P/60Hz, 1080P/24Hz) |
| | INPUT 2 HDMI | | HDMI (HDMI input) (480I, 576I, 480P, 576P, 720P/50Hz, 720P/60Hz, 1080I/50Hz, 1080I/60Hz, 1080P/50Hz, 1080P/60Hz, 1080P/24Hz), AUDIO in (shared usage with PC) (ϕ 3.5 mm jack) |
| | INPUT 3 HDMI | | HDMI (HDMI input) (480I, 576I, 480P, 576P, 720P/50Hz, 720P/60Hz, 1080I/50Hz, 1080I/60Hz, 1080P/50Hz, 1080P/60Hz, 1080P/24Hz) |
| | INPUT 4 (MHL) HDMI | | HDMI (HDMI input) (480I, 576I, 480P, 576P, 720P/50Hz, 720P/60Hz, 1080I/50Hz, 1080I/60Hz, 1080P/50Hz, 1080P/60Hz, 1080P/24Hz) |
| | INPUT 5 | | AUDIO in, VIDEO in or COMPONENT in (ϕ 3.5 mm jack) (480I, 576I, 480P, 576P, 720P/50Hz, 720P/60Hz, 1080I/50Hz, 1080I/60Hz) |
| | INPUT 6 | | VIDEO in, AUDIO in (ϕ 3.5 mm jack) |
| | USB 1 | | USB |
| | USB 2 (WIRELESS LAN) | | USB |
| | USB 3 (HDD) | | USB |
| | ETHERNET (10/100 BASE-T) | | Network connector |
| | AUDIO IN (HDMI 2/PC) | | ϕ 3.5 mm jack*1 |
| | DIGITAL AUDIO OUTPUT | | Optical S/PDIF digital audio output |
| | OUTPUT/Headphones | | ϕ 3.5 mm jack (audio output) |
| OSD language | | | English/Simplified Chinese/Arabic/French/Portuguese/Russian/Persian/Thai/ Vietnamese/Indonesian |
| Power requirement | | | AC 110—240 V, 50/60 Hz |
| Power consumption (method IEC62087) | | | 381 W<br>(0.3 W Stand by) |
| Weight | With Stand | | 68.0 kg |
| | Without Stand | | 64.0 kg |
| Operating temperature | | | 0 °C to + 40 °C |

*1 The HDMI 2 and PC terminals can both use the same audio input terminal.

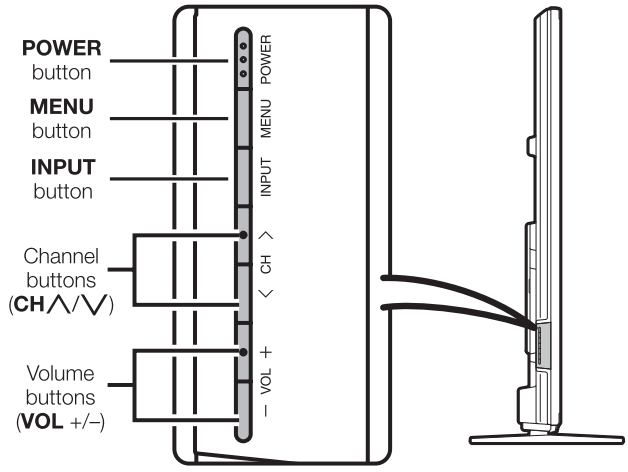
- As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

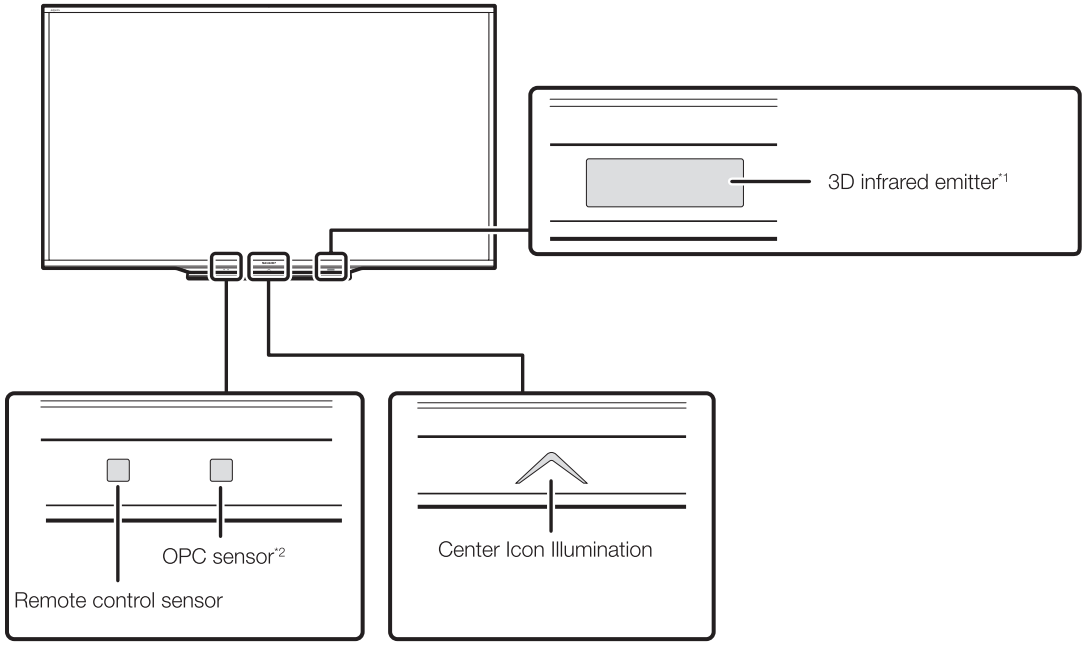
# CHAPTER 2. OPERATION MANUAL

## [1] OPERATION MANUAL

# Part names and functions

## TV (Front/Side)

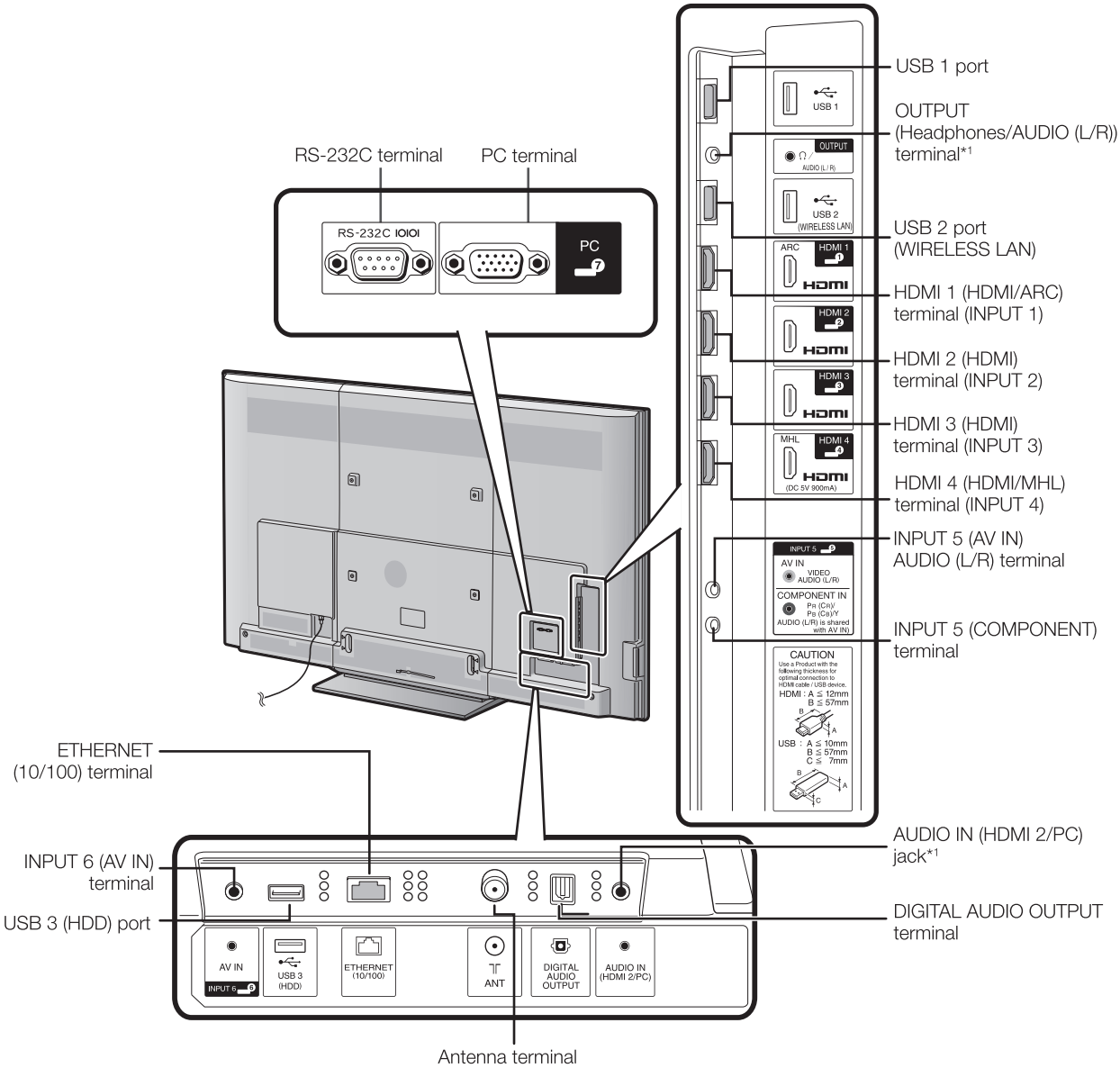



*1 This panel emits infrared signal towards the 3D glasses you wear when viewing 3D images. Do not place anything between the 3D infrared emitter on the TV and the infrared receiver on the 3D glasses.
*2 OPC: Optimum picture control

## Part names and functions

### TV (Rear)



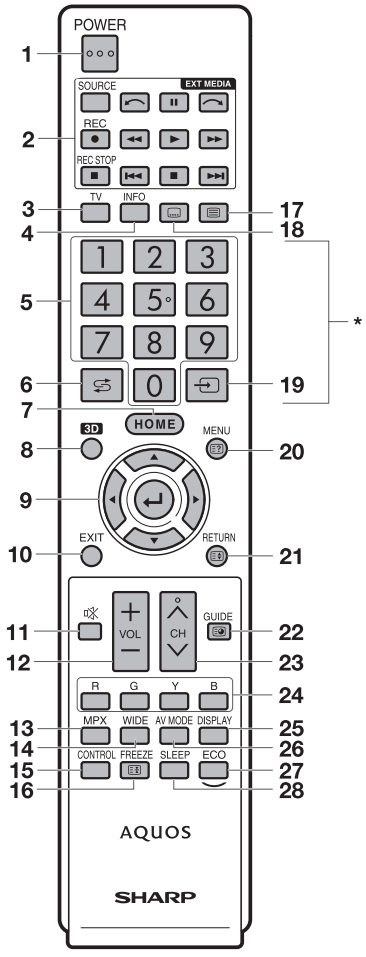

*1 The HDMI 2 and PC terminals can both use the same audio input terminal (AUDIO IN (HDMI 2/PC)). However, the proper item must be selected in the "Audio select" menu.

**WARNING**

- Excessive sound pressure from earphones and headphones can cause hearing loss.
- Do not set the volume at a high level. Hearing experts advise against extended listening at high volume levels.

# Part names and functions

## Remote control unit




**1 POWER (Standby/On)**
To switch the power on and off.

**2 EXT MEDIA buttons**

AQUOS LINK
If external equipment such as a AQUOS BD player is connected via HDMI cables and is AQUOS LINK compatible, you can use these EXT MEDIA buttons.
TIME SHIFT
Press to temporarily record a programme you are watching if you want to interrupt a programme to answer a phone call, for example.

**3 TV**
Press to access analogue and digital TV mode.

**4 INFO**
DTV : Display the programme information.
ATV : Display the channel information.

**5 0–9***
Set the channel.

**6 (Flashback)***
Press to return to the previously selected channel or external input.

**7 HOME**
Display the "HOME" screen to enjoy Internet connection and Home network function and to perform settings for the TV.

**8 3D**
Select between 3D and 2D image viewing.

**9 ▲/▼/◀/▶ (Cursor)**
Select a desired item on the setting screen.

**(ENTER)**
Execute a command.

**10 EXIT**
Turn off the On-Screen Display.

**11 (Mute)**
Mute the sound.

**12 VOL+/–**
Set the volume.

**13 MPX**
Select a sound multiplex mode.

**14 WIDE**
Change a wide image mode.

**15 CONTROL**
Press to display the panel to operate some functions on the screen.

**16 FREEZE/ (Hold)**
Freeze a motion picture on the screen.
Teletext mode: Stop updating teletext pages automatically. Press again to release the hold mode.

**17 (Teletext)**
Select the teletext mode (All TV image, all text image and TV/text image).

**18 (Subtitle)**
Switch subtitle languages on/off.

**19 (INPUT SOURCE)***
Select an input source.

**20 MENU/ (Reveal hidden teletext)**
Displays the menu screen.
Teletext mode: Display hidden characters.

**21 RETURN/ (Top/Bottom/Full)**
Menu mode: Return to the previous menu screen.
Teletext mode: Set the area of magnification.

**22 GUIDE/ (Subpage)**
DTV : To display EPG (Electronic Programme Guide) screen.
ATV : Display the channel list.
Teletext mode: Display the teletext subpage directly.

**23 CH∧/∨**
TV input mode: Select the channel.
AQUOS.NET: Select the page.

**24 R/G/Y/B (Colour) buttons**
The coloured buttons are correspondingly used to select the coloured items on the screen (e.g., AQUOS LINK, USB media, Home network, teletext).

**25 DISPLAY**
Display the channel or input information.
Reveal/hide the guide display for USB media mode.

**26 AV MODE**
Select audio/video settings.

**27 ECO**
Select "Energy save" setting.

**28 SLEEP**
Set the sleep timer.

### NOTE

* "0 – 9", "", "" are used by string input like a mobile phone.

# Preparation

## Attaching the Stand

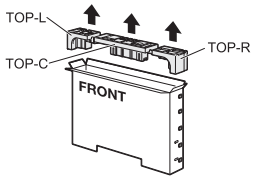
- Before attaching (or detaching) the stand, unplug the AC cord.
- Before performing work spread cushioning over the base area to lay the TV on. This will prevent it from being damaged.

**CAUTION**

- **Be sure to follow the instructions. Incorrect installation of the stand may result in the TV falling over.**
- **After attaching the stand to the TV, do not hold the stand when you put up, set up, move or lay down the TV.**
- **Do not remove the stand from the TV unless using a wall mount bracket to mount it.**

Before attaching the stand to the TV, build a work table on which to rest the TV.

- To build the table, use the cushioning materials used in the packaging.

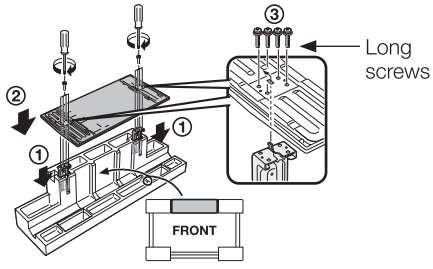



- Of the cushioning materials used, TOP-C is also used during stand unit assembly. Be sure to assemble the stand unit before building the work table.

### ■ Stand Unit Assembly

**1** Confirm that there are 12 screws (8 long screws and 4 short screws) supplied with the stand unit.

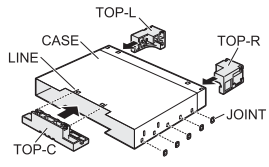
**2** ① Set the post for the stand unit onto the TOP-C.
② Attach the base to the post.
③ Insert and tighten the 8 screws into the 8 holes on the bottom of the base.
- Hold the stand unit securely with one hand, and then tighten the screws.



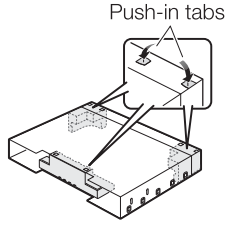

### ■ Building the Work Table

**3** Attach the joints and close the case.
① Insert a joint into the hole on the side of the case.
② Pressing the tab, fix the joint into place.

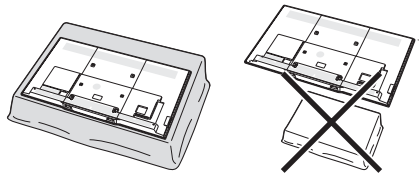
**4** Insert each of the cushioning materials in the respective directions shown in the figure.
- Insert TOP-L and TOP-R into the left and right sides of the case respectively.
- Insert TOP-C to fit between the lines on the other side of the case.




**5** The case is equipped with push-in tabs to hold the cushioning materials in place. Push in the tabs (2 for each location) to secure the cushioning materials in the case.

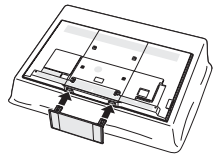



**6** After you have built the work table, spread a blanket or similar soft cloth over the table and then lay the TV display down on the covered table.
- Do not use a small table for this.

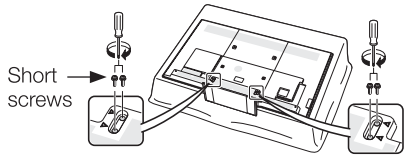


### ■ Attaching the Stand to the TV

**7** Insert the stand into the openings on the bottom of the TV.
- Make sure that the stand is firmly inserted into the TV. Improper installation may result in tilting of the TV set.

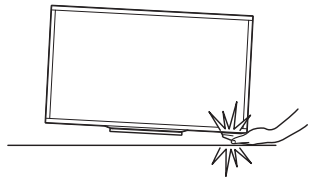


**8** Insert and tighten the 4 screws into the 4 holes on the rear of the TV.




**NOTE**

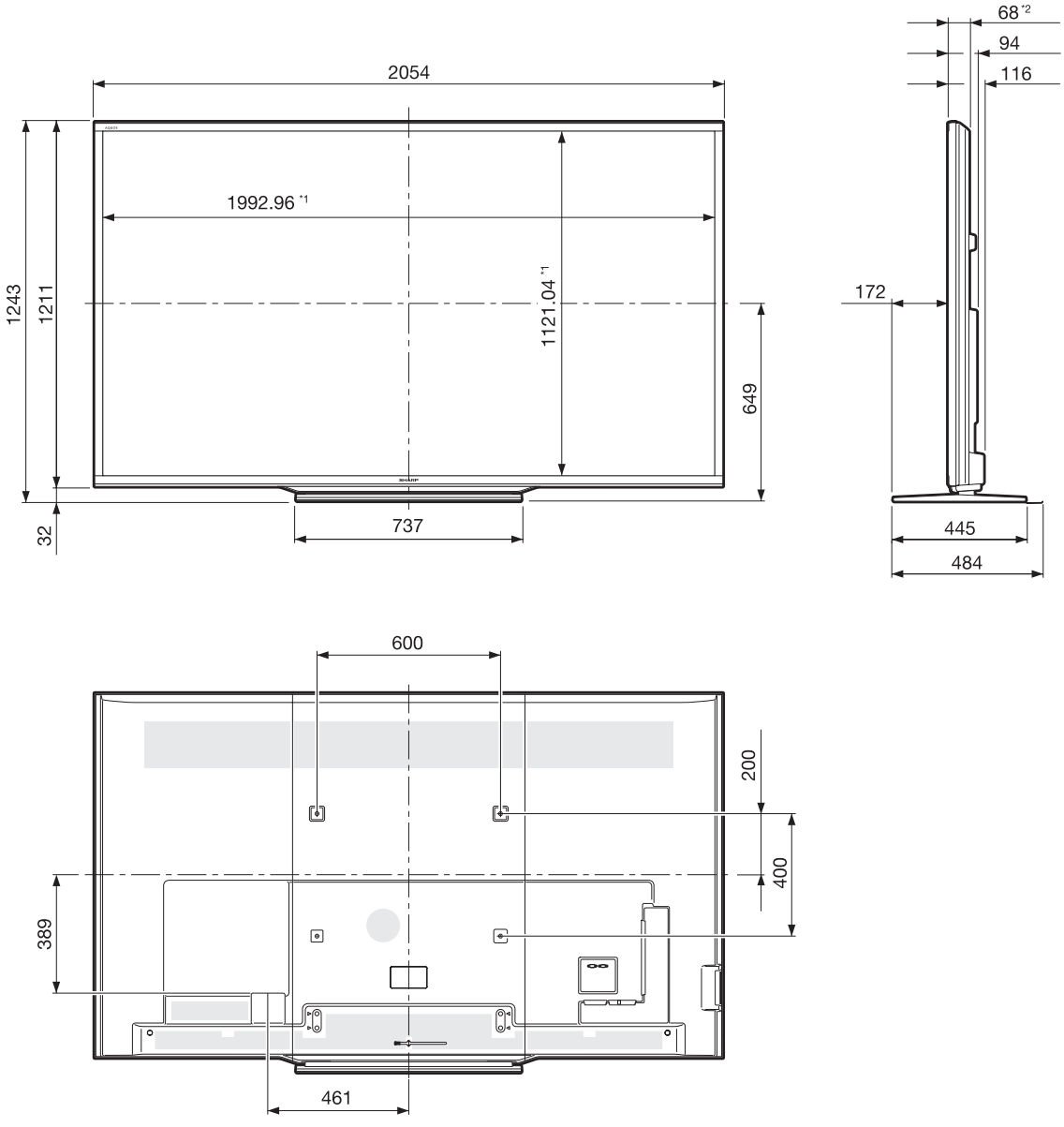
- In the installation procedure, be careful not to catch your fingers between the TV set and the floor.



# CHAPTER 3. DIMENSIONS

## [1] DIMENSIONS

### Dimensional drawings



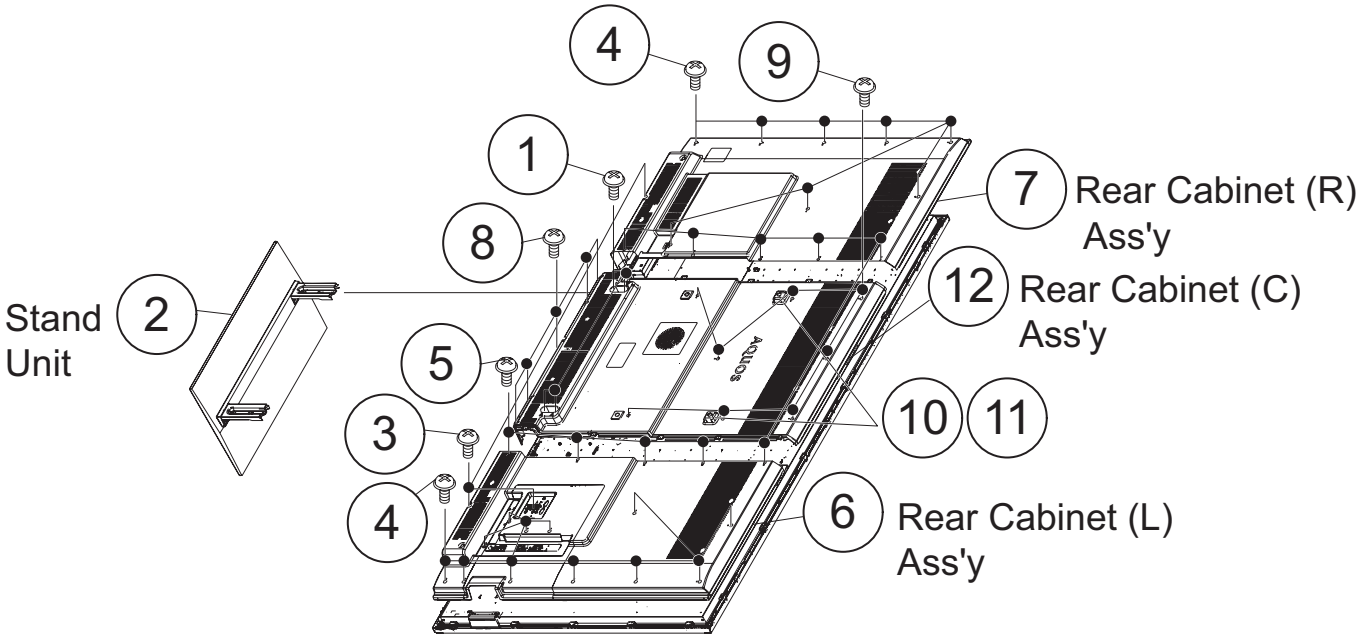

*1 Active area
*2 Thinnest part

# CHAPTER 4. REMOVING OF MAJOR PARTS

## [1] REMOVING OF MAJOR PARTS

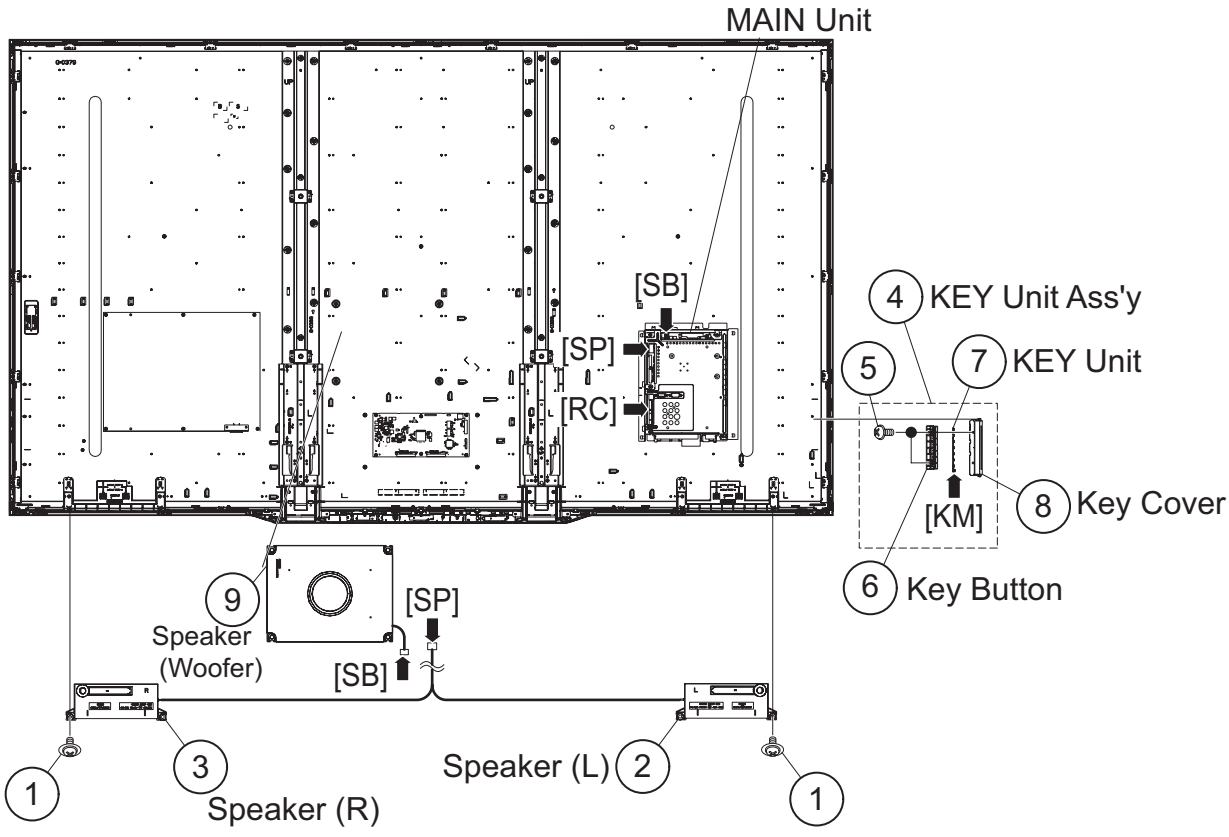
### 1. Removing of Stand Unit and Rear Cabinet Ass'y.

1. Remove the 4 lock screws (1) and detach the Stand Unit (2).
2. Remove the 3 lock screws (3), 20 lock screws (4), 10 lock screws (5) and detach the Rear Cabinet (L) Ass'y (6), Rear Cabinet (R) Ass'y (7).
3. Remove the 5 lock screws (8), 8 lock screws (9), 2 angles (11) and detach the Rear Cabinet (C) Ass'y (12).



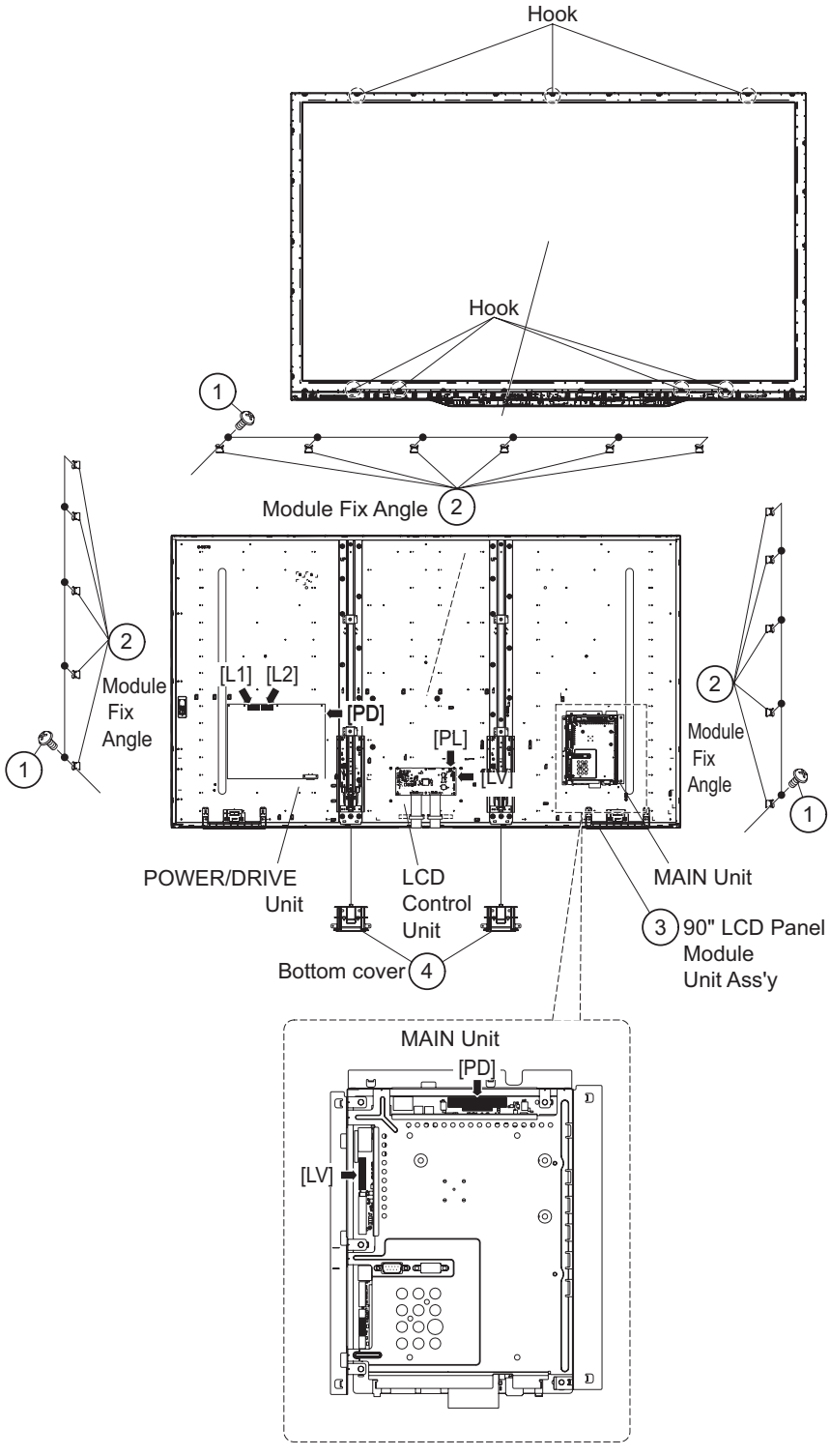
## 2. Removing of Speaker (L/R), Speaker (Woofer) and KEY Unit.

1. Disconnect the SP wire.
2. Remove the 2 lock screws (1) and detach the Speaker (L) (2), Speaker (R) (3).
3. Disconnect the RC wire.
4. Detach the KEY Unit Ass'y (4).
5. Disconnect the KM wire.
6. Remove the 2 lock screws (5) and detach the Key Button (6) from Key Cover (8).
7. Detach the KEY Unit (7) from Key Button (6).
8. Disconnect the SB wire.
9. Detach the Speaker (Woofer) (9).



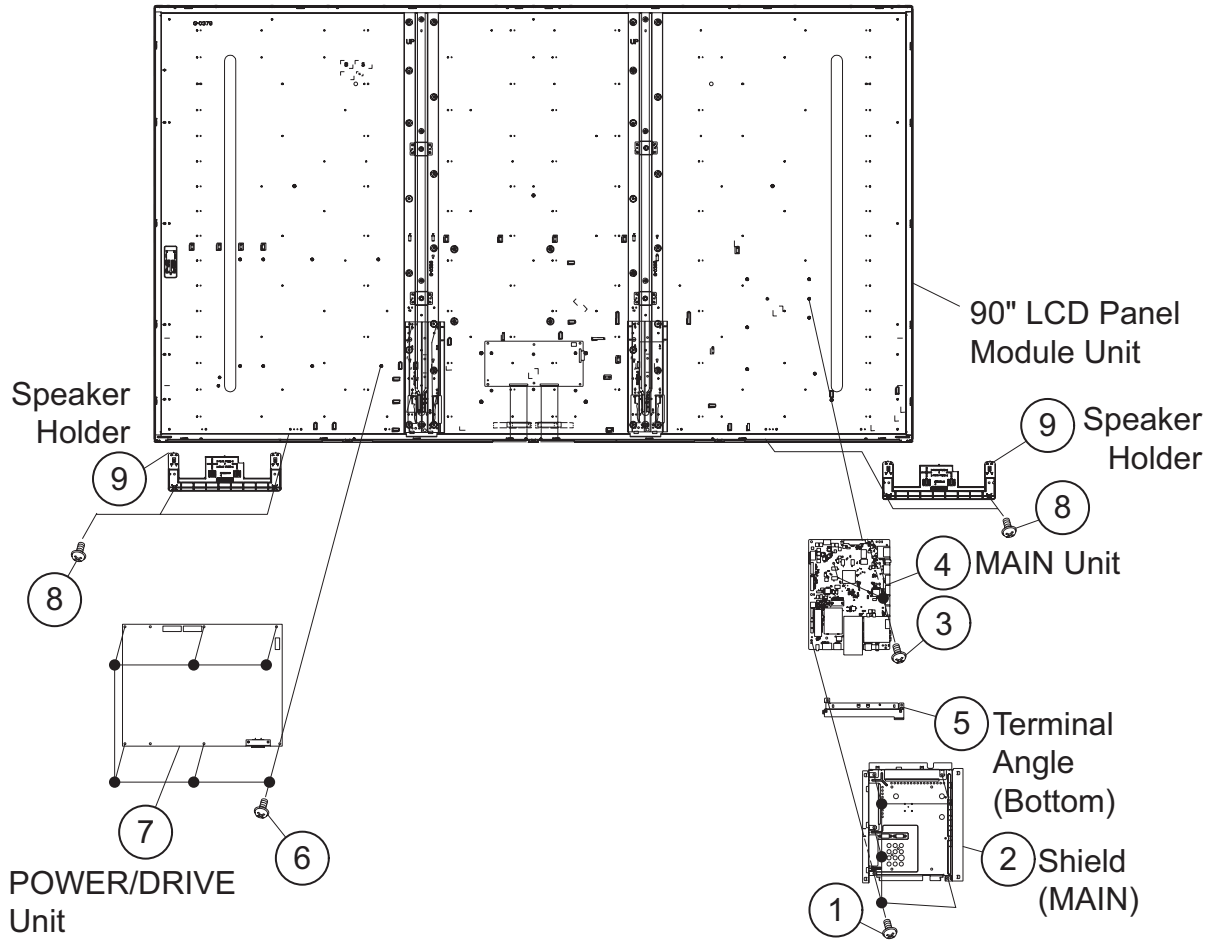
### 3. Removing of Connectors, 90” LCD Panel Module Unit Ass’y.

1. Disconnect the following connectors from the MAIN Unit. (LV, PD)
2. Disconnect the following connectors from the POWER/DRIVE Unit. (L1, L2, PD)
3. Disconnect the following connectors from the LCD Control Unit. (PL, LV)
4. Remove the 16 lock screws (1) and detach the 16 Module Fix Angles (2)
5. Remove the 7 Hooks and detach the 90” LCD Panel Module Unit Ass’y (3).
6. Detach the 2 Bottom cover (4).



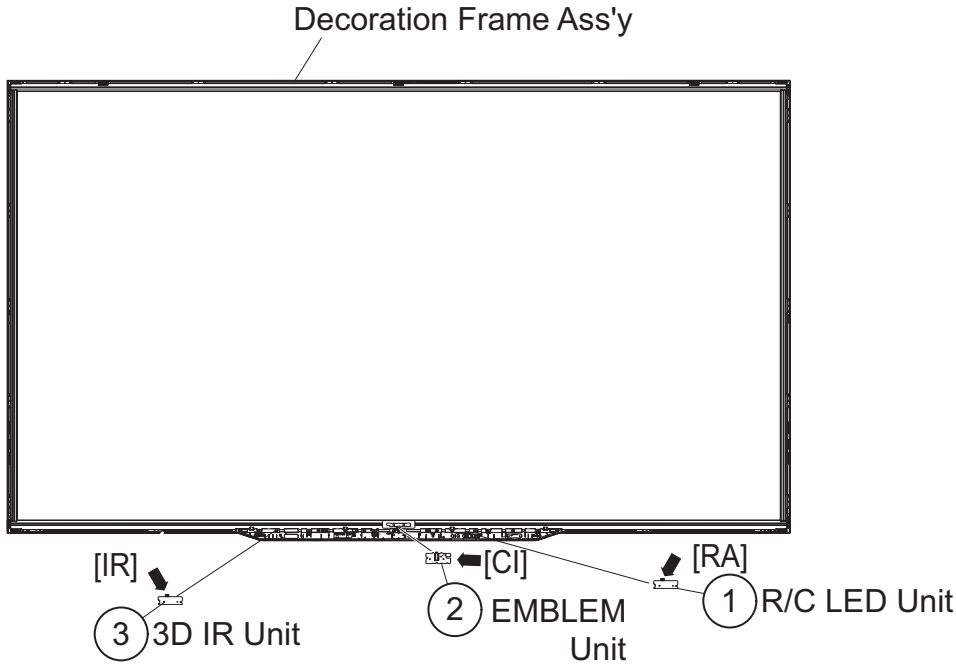
**4. Removing of LCD CONTROL Unit, MAIN Unit, POWER/DRIVE Unit.**

1. Remove the 5 lock screws (1) and detach the Shield (MAIN) (2).
2. Remove the 3 lock screws (3) and detach the MAIN Unit (4) and Terminal Angle (Bottom) (5).
3. Remove the 6 lock screws (6) and detach the POWER/DRIVE Unit (7).
4. Remove the 4 lock screws (8) and detach the 2 Speaker Holders (9).



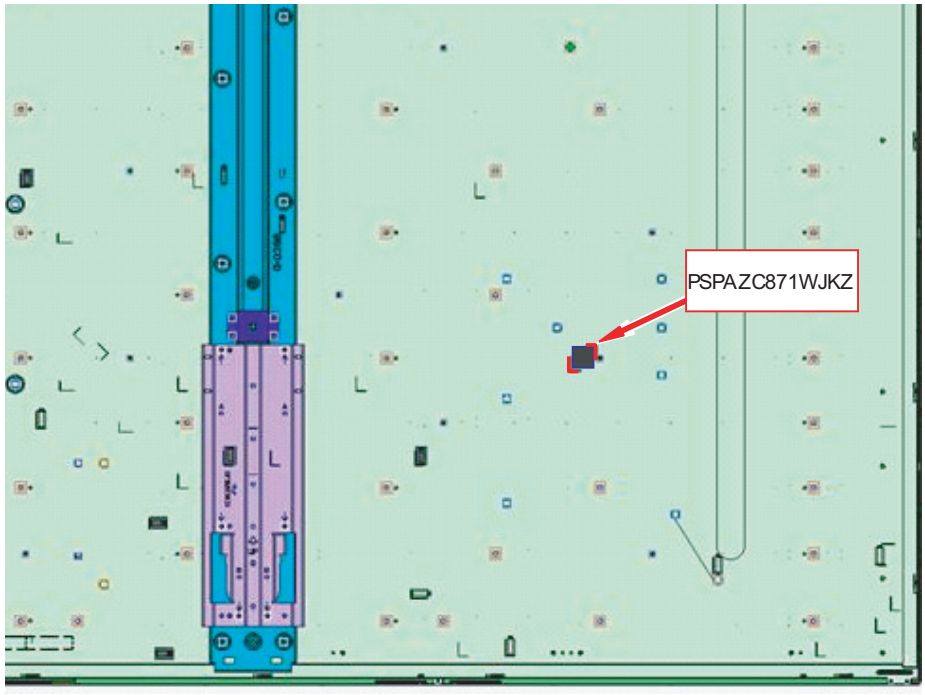
**5. Removing of R/C LED Unit, EMBLEM Unit, 3D IR Unit.**

1. Detach the R/C LED Unit (1).
2. Disconnect the RA wire.
3. Detach the EMBLEM Unit (2).
4. Disconnect the CI wire.
5. Detach 3D IR Unit (3).
6. Disconnect the IR wire.



## [2] The location putting on the heat measure sheet

### 1. MAIN PWB Unit




### 2. LCD Control Unit

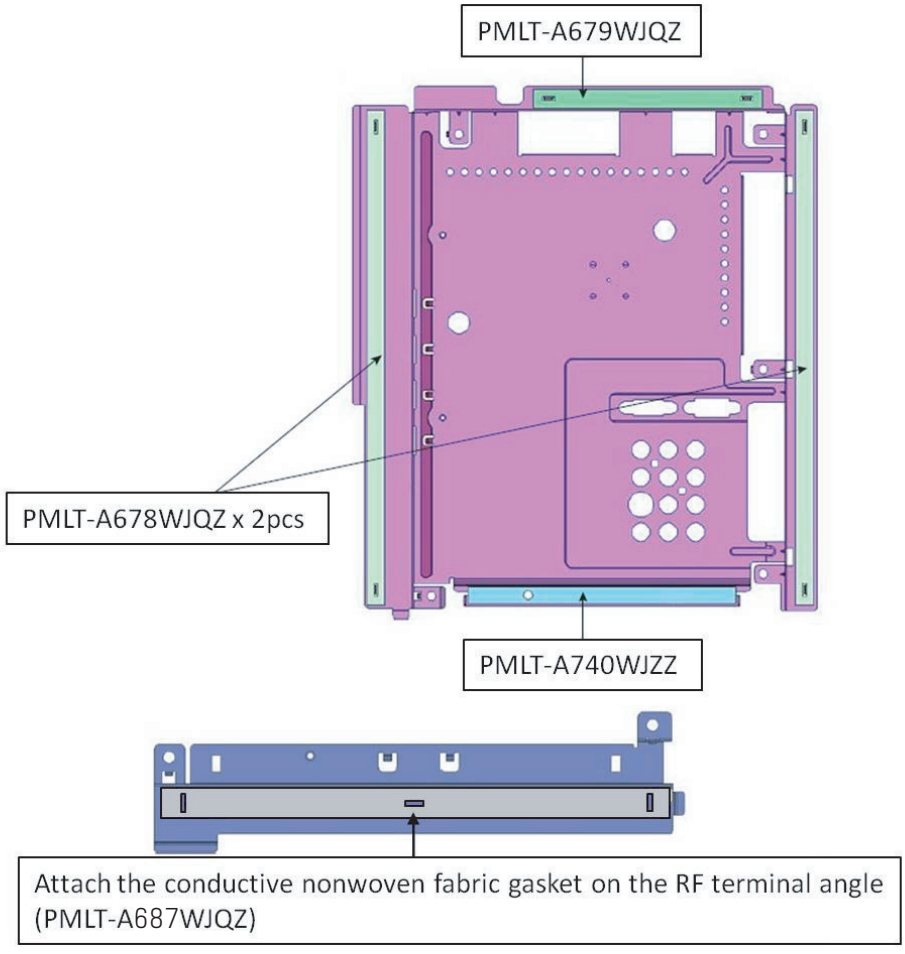
# [3] Precautions for assembly

## 1. Points to be checked and precautions when servicing the unit

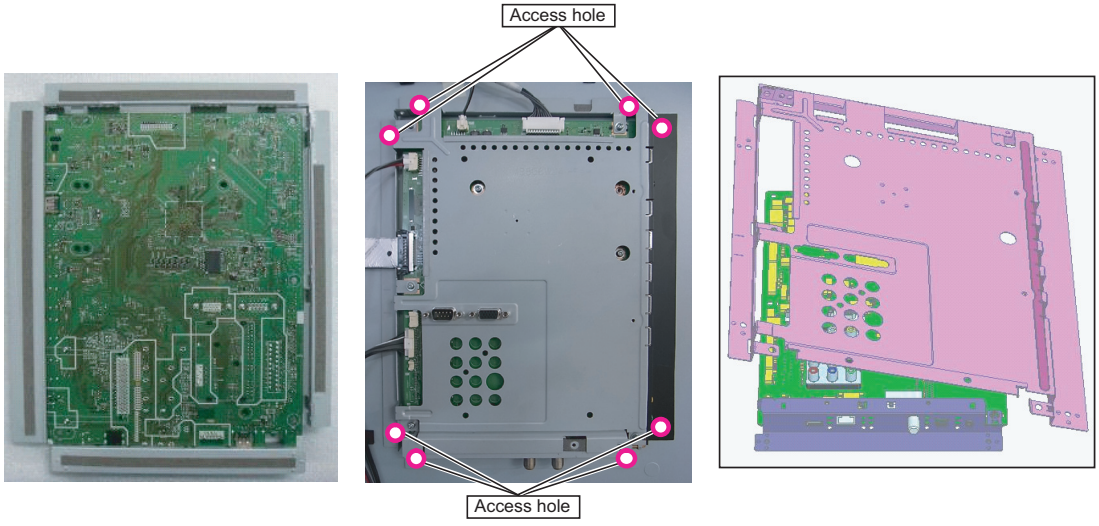
Mount the main PWB Ass'y on the backlight chassis and check that the EMI-prevention parts are not peeled and twisted from the access holes. (The EMI-prevention parts, conductive nonwoven fabric gaskets, must be seen from the access holes.)

[Countermeasure]

Attach the conductive nonwoven fabric gaskets on the shielded case on the main PWB.

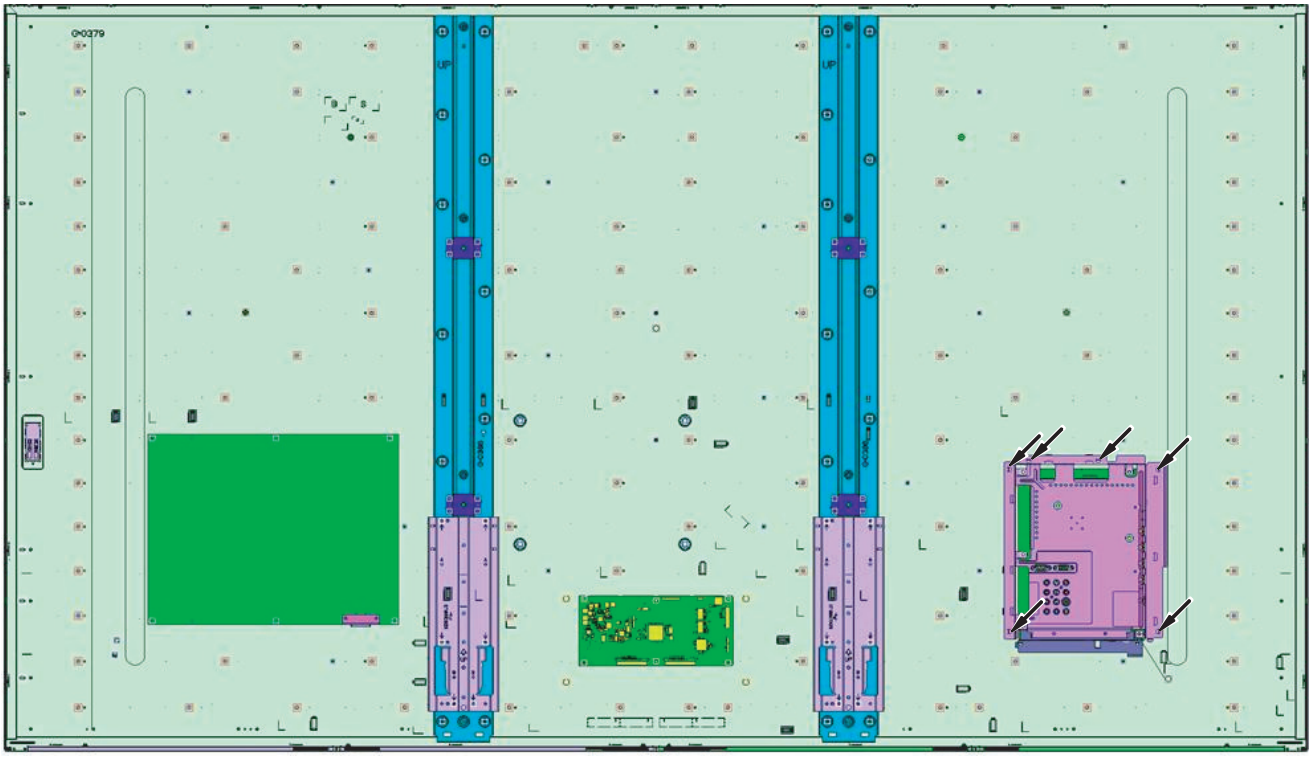



State where the main PWB and shielded case are assembled



The following is a drawing mounting the main PWB Ass'y on the backlight chassis. (The parts indicated by -> are the access holes for confirmation.)

(Main PWB Ass'y => State where the shielded case and RF terminal angle are mounted on the main PWB)



# CHAPTER 5. ADJUSTMENT

## [1] ADJUSTMENT PROCEDURE

Main unit supplied as service unit was adjusted on some item.

However, W/B adj is not finished because it needs to be done by final set condition. So the main unit is in the adjustment condition when it is supplied and K mark is shown up in display when you use it. After finishing Factory setting, K -mark disappear so please do it as following ADJUSTMENT PROCUDURE.

The adjustment values are set to the optimum conditions at the factory before shipping. If a value should become improper or an adjustment is required due to part replacement, make an adjustment according to the following procedure.

### 1. After replacement of any PWB unit and/or IC for repair, please note the following.

- When replacing the following units, make sure to prepare the new units loaded with updated software.

MAIN Unit: DKEYMF953FMJ6

- When replacing the LCD control PWB, perform the VCOM adjustment.

### 2. Upgrading of each microprocessor software

CAUTION: Never “POWER OFF” the unit when software upgrade is ongoing.

Otherwise the system may be damaged beyond recovery.

#### 2.1. Software version upgrade

The model employs the following software.

- Main software (please use a software version after LEON_LE740X_xxx.USB).
- Monitor microprocessor software (please use a software version after LEONSUBxxx.SMB.)

The main software, monitor microprocessor software can be upgraded by using a general-purpose USB Memory.

The followings are the procedures for upgrading, explained separately for the main software, monitor microprocessor software.

#### 2.2. Main software version upgrade

##### 2.2.1 Get ready before you start

- USB Memory of 128MB or higher capacity.
- PC running on Windows 98/98SE/ME/2000/XP operating system.
- USB Memory reader/writer or PC with a USB port.
- The file system of a USB memory is FAT. (FAT32 supports)
- Use the USB memory without other functions. (lock and memory reader...etc)

##### 2.2.2 Preparations

To upgrade the main software, it is necessary to get ready the USB Memory for version upgrade before you start.

Follow the steps below and create the USB Memory for version upgrade.

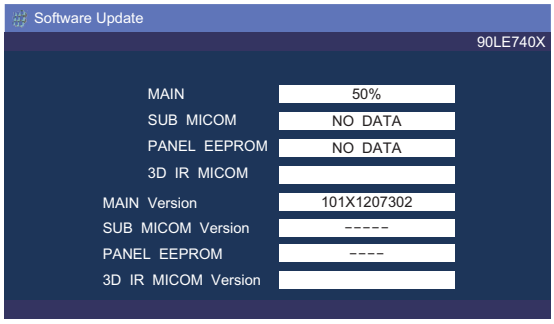
1. Copy the file LEON_LE740X_xxx.USB for version upgrade to the root directory (folder) of the USB Memory.

NOTE: In the USB Memory drive, do not store other folders or unrelated files, or more than one file for version upgrade.

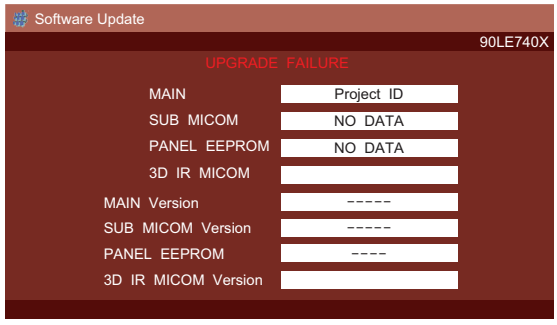
Now the USB Memory for version upgrade is ready.

### 2.2.3 How to upgrade the software

1. Unplug the AC cord.
2. Insert the USB Memory for version upgrade into USB1.
3. Plug in the AC cord with power button pressed down.
4. After 5 seconds, unpress the power button.
5. After the unit startup, the system upgrade screen as shown below within 20-40 seconds.

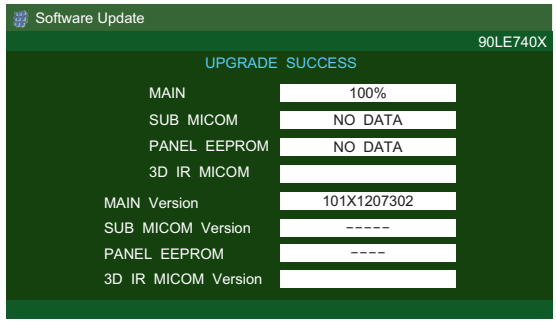



6. Even a single failure in the process will trigger the upgrade failure screen.




NOTE: In the event of a failure, repeat the upgrade process. If the process repeatedly fails, it is likely that the hardware need fixing.

7. Upon completion of the whole process, the upgrade success screen as shown below appears. You can check the new software version on this screen. The version information appears after the upgrade is complete.




8. Unplug the AC cord and remove the USB Memory for version upgrade.
9. Now the software version upgrade is complete.

NOTE: When you are done with the software version upgrade, start the set, go to the top page of the adjustment process screen and check the main software version information.

### 2.3. Monitor microprocessor software version upgrade

Create the USB memory for monitor microprocessor software version upgrade in the same manner as explained in the “Main software version upgrade”.

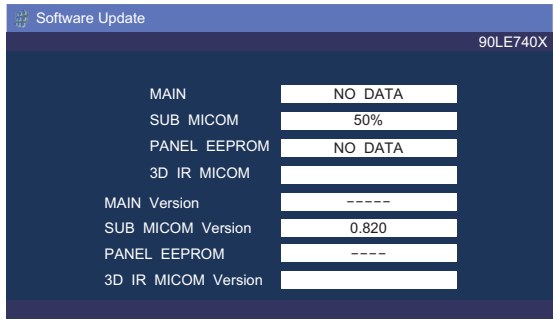
Copy the file LEON_LE740X_xxx.USB and LEONSUBxxx.SMB. (named temporarily) for monitor microprocessor software version upgrade to the USB memory.

#### 2.3.1 How to upgrade the software

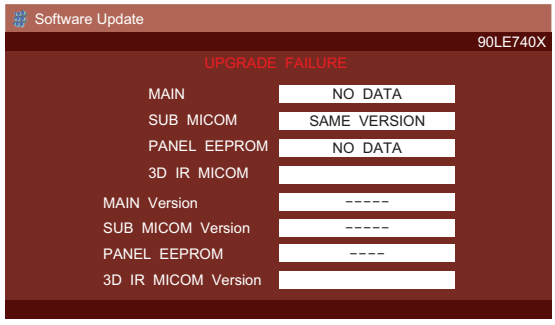
1. Unplug the AC cord.
2. Insert the USB Memory for version upgrade into USB1.
3. Plug in the AC cord with power button pressed down.
4. After 5 seconds, unpress the power button.

CAUTION:
- The moment this operation is done, the upgrading of the monitor microprocessor software starts. While the upgrade is ongoing, never power off the unit. Otherwise the upgrade will fail and the system may be serious damaged beyond recovery (inability to start).
- After the monitor microprocessor software is upgraded, also perform the 'Industry Init'.

5. After the unit startup, the upgrade starts. The power led will blink continuously. Also, an upgrade screen will be shown during a minor upgrade.

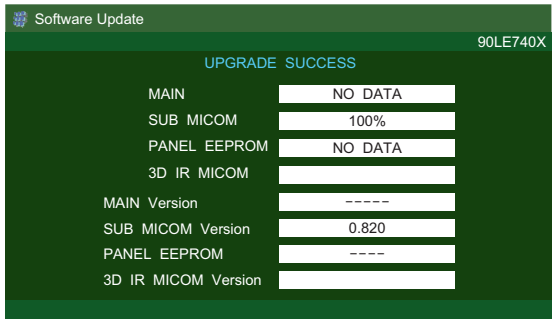



6. If the upgrade fails, power led will stop blinking. Also, the upgrade failure screen will be shown if upgrade screen was shown at 5.




NOTE: In the event of a transient failure, upgrade will be automatically retried up to three times. If the process repeatedly fails, hardware may be the cause.

7. The upgrade success screen will be shown if upgrade screen was shown at 5.




8. Unplug the AC cord and remove the USB Memory for version upgrade.
9. Now the software version upgrade is complete.

NOTE: When you are done with the software version upgrade, start the set, go to the top page of the adjustment process screen and check the monitor microprocessor software version information and panel size information.

## 3. Entering and exiting the adjustment process mode

1) Before entering the adjustment process mode, the AV position RESET in the video adjustment menu.
2) While holding down the “VOL(-)” and “INPUT” keys at a time, plug in the AC cord of the main unit to turn on the power.

   The letter “<K>” appears on the screen.
3) Next, hold down the “VOL(-)” and “CH( ∨ )” keys at a time.

   (The “VOL (—)” and “CH ( ∨ )” keys should be pressed and held until the display appears.)

   Multiple lines of blue characters appearing on the display indicate that the unit is now in the adjustment process mode.

   When you fail to enter the adjustment process mode (the display is the same as normal startup), retry the procedure.
4) To exit the adjustment process mode after the adjustment is done, unplug the AC cord from the outlet to make a forced shutdown. (When the power was turned off with the remote controller, once unplug the AC cord and plug it again. In this case, wait 10 seconds or so before plugging.)

CAUTION: Use due care in handling the information described here lest your users should know how to enter the adjustment process mode. If the settings are tampered in this mode, unrecoverable system damage may result.

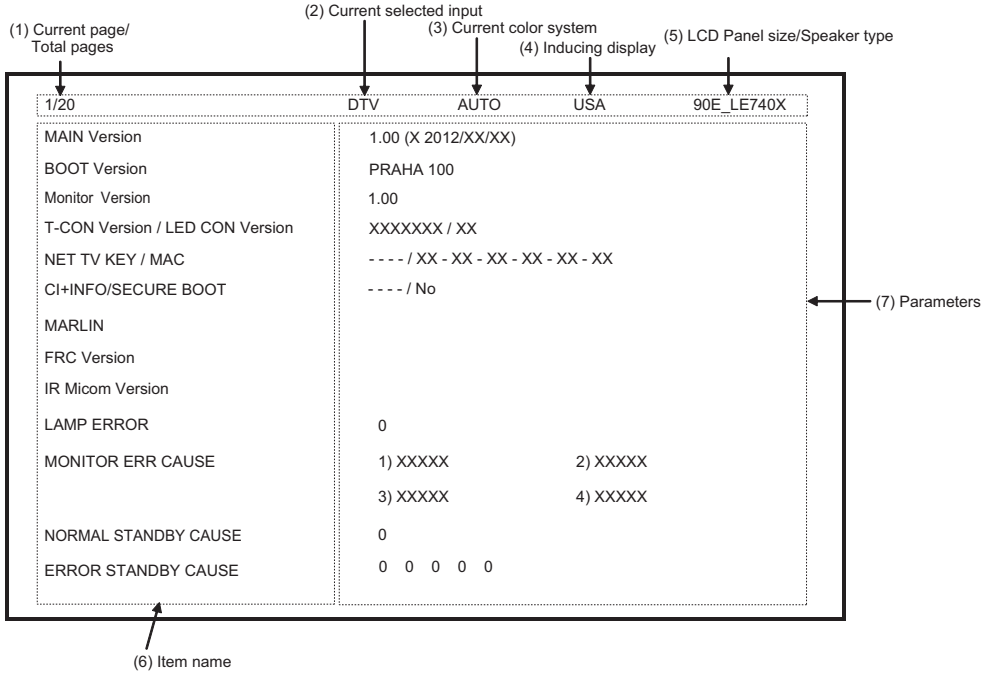
## 4. Remote controller key operation and description of display in adjustment process mode

1) Key operation

| Remote controller key | Main unit key | Function |
|---|---|---|
| CH ( ∨ / ∧ ) | CH ( ∨ / ∧ ) | Moving an item (line) by one (UP/DOWN) |
| VOL (+/–) | VOL (+/–) | Changing a selected item setting (+1/ –1) |
| Cursor (UP/DOWN) | ———— | Turing a page (PREVIOUS/NEXT) |
| Cursor (LEFT/RIGHT) | ———— | Changing a selected line setting (+10/ –10) |
| INPUT | ———— | Input switching (toggle switching) |
| ENTER | ———— | Executing a function |

*Input mode is switched automatically when relevant adjustment is started so far as the necessary input signal is available.

2) Description of display




| No. | Description | Display specification |
|---|---|---|
| (1) | Present page/number of total pages | 2char/2char Decimal Number mark. |
| (2) | Input that has been selected now | DTV/TUNER/INPUT1/INPUT2/INPUT3/INPUT4/INPUT5/INPUT6/INPUT7 |
| (3) | Present colour system | AUTO/N358/N443/PAL/SECAM/480i/580i/1080i/50 etc. ··· |
| (4) | Inducing display | AUSTRALIA/NEWZEALAND/GENERAL |
| (5) | Inch setting and Model name display | Inch setting and Model name display |
| (6) | Item name | Max. 30 char |
| (7) | Parameter | Max. 60 char |

## 5. List of adjustment process mode menu

The character string in brackets [ ] will appear as a page title in the adjustment process menu header.

| Page | Line | Item | Description | Remarks (adjustment detail, etc.) |
|---|---|---|---|---|
| 1/20 | | | | |
| | 1 | MAIN Version | 1xxx(xxxxx) | Main software version |
| | 2 | BOOT Version | xxxxxxx | BOOT Version |
| | 3 | Monitor Version | xxxxxxx | Monitor software version |
| | 4 | T-CON Version / LED CON Version | xxxxxxxx/xxxx | T-CON/H.264 Version |
| | 5 | NET TV KEY / MAC | xxx/xxxx | MAC Address |
| | 6 | CI + INFO / SECURE BOOT | xxxxx/NO | CI + Key Information / SECURE BOOT |
| | 7 | MARLIN | | |
| | 8 | FRC Version | | |
| | 9 | IR Micom Version | | |
| | 10 | LAMP ERROR | 0 | Number of termination due to lamp error. |
| | 11 | MONITOR ERR CAUSE | 1) xxxxxx 2) xxxxxx<br>3) xxxxxx 4) xxxxxx | Last error standby cause. |
| | 12 | NORMAL STANDBY CAUSE | 0 | Situsation that became standby at the end.<br>(Excluding the error) Refer to 7. STANDBY CAUSE FUNCTIONS. |
| | 13 | ERROR STANDBY CAUSE | 0 0 0 0 | Error standby cause. Refer to 7. STANDBY CAUSE FUNCTIONS. |
| 2/20 | | | | |
| | 1 | INDUSTRY INIT | Enter | Initialization to factory settings execution. |
| | 2 | INDUSTRY INIT (-Public) | OFF | Initialization to factory settings execution.<br>(Public mode is excluded) |
| | 3 | PUBLIC MODE | OFF | Public mode ON/OFF setting |
| | 4 | Center Acutime | — | Main operating hours. |
| | 5 | RESET | OFF | Main operating hours reset. |
| | 6 | Backlight Acutime | — | Backlight operating hours. |
| | 7 | RESET | OFF | Backlight operating hours reset. |
| | 8 | LAMP ERROR RESET | OFF | Lamp error reset. |
| | 9 | ADJ PARAM SET | Enter | ADJ PARAM SET |
| | 10 | VIC XPOS | 0 | X-coordinate setting for VIC READ |
| | 11 | VIC YPOS | 0 | Y-coordinate setting for VIC READ |
| | 12 | VIC SIGNAL TYPE | MAIN | Signal type setting for VIC READ |
| | 13 | VIC READ | OFF | Picture level acquisition function<br>(Level appears in green on the upper right) |
| 3/20 | | | | |
| | 1 | TUNER ADJ | Enter | TUNER auto adjustment execution |
| | 2 | PAL+TUNER ADJ | Enter | PAL TUNER auto adjustment execution |
| | 3 | TUNER ADJ (CA-8CH) | Enter | TUNER auto adjustment execution (CA-8CH) |
| | 4 | PAL+TUNER ADJ (CA-8CH) | Enter | PAL TUNER auto adjustment execution (CA-8CH) |
| | 5 | TUNER ADJ (SMPTE) | Enter | TUNER auto adjustment execution (SMPTE) |
| | 6 | PAL+TUNER ADJ (SMPTE) | Enter | PAL TUNER auto adjustment execution (SMPTE) |
| | 7 | TUNER ADJ (SMPTE CH57) | Enter | TUNER auto adjustment execution (SMPTE CH57) |
| | 8 | PAL+TUNER ADJ (SMPTE CH57) | Enter | PAL TUNER auto adjustment execution (SMPTE CH57) |
| | 9 | TUNER CONTRAST A_GAIN | 14 | TUNER signal level adjustment |
| | 10 | TUNER CONTRAST D_GAIN | 2048 | TUNER signal level adjustment |
| | 11 | TUNER CONTRAST OFFSET | 256 | TUNER signal level adjustment |
| 4/20 | | | | |
| | 1 | PAL ADJ | Enter | PAL adjustment |
| | 2 | SECAM ADJ | Enter | SECAM adjustment |
| | 3 | N358 ADJ | Enter | N358 adjustment |
| | 4 | PAL CONTRAST A_GAIN | 14 | PAL contrast adjustment |
| | 5 | PAL CONTRAST D_GAIN | 2048 | PAL contrast adjustment |
| | 6 | PAL CONTRAST OFFSET | 256 | PAL contrast adjustment |
| | 7 | SECAM CONTRAST A_GAIN | 14 | SECAM contrast adjustment |
| | 8 | SECAM CONTRAST D_GAIN | 2048 | SECAM contrast adjustment |
| | 9 | SECAM CONTRAST OFFSET | 256 | SECAM contrast adjustment |
| | 10 | N358 CONTRAST A_GAIN | 14 | N358 contrast adjustment |
| | 11 | N358 CONTRAST D_GAIN | 2048 | N358 contrast adjustment |
| | 12 | N358 CONTRAST OFFSET | 256 | N358 contrast adjustment |

| Page | Line | Item | Description | Remarks (adjustment detail, etc.) |
|---|---|---|---|---|
| 5/20 | | | | |
| | 1 | HDMI CEC TEST | Enter | HDMI CEC test |
| | 2 | HDMI EDID WRITE | Enter | HDMI EDID WRITING |
| | 3 | INSPECT USB TERM | PORT ALL : - - - - - - | Reading inspection of USB memory terminal |
| | 4 | MONIDATA READ [TEMP/OPC] | OFF | MONITOR Temperature/OPC Acquisition tool. |
| | 5 | CAUSE RESET | Enter | Reset of standby cause |
| 6/20 | | | | |
| | 1 | COMP15K ALL ADJ | Enter | Component 15K picture level adjustment |
| | 2 | COMP15K MAIN Y GAIN | 140 | Y GAIN adjustment value |
| | 3 | COMP15K MAIN CB GAIN | 150 | Cb GAIN adjustment value |
| | 4 | COMP15K MAIN CR GAIN | 150 | Cr GAIN adjustment value |
| | 5 | COMP15K Y OFFSET | 64 | Y OFFSET adjustment value |
| | 6 | COMP15K CB OFFSET | 128 | CB OFFSET adjustment value |
| | 7 | COMP15K CR OFFSET | 128 | CR OFFSET adjustment value |
| | 8 | COMP15K A_CLAMP | 0 | |
| 7/20 | | | | |
| | 1 | HDTV ADJ | Enter | HDTV video level adjustment |
| | 2 | HDTV Y GAIN | 140 | HDTV Y GAIN adjustment value |
| | 3 | HDTV CB GAIN | 150 | HDTV Cb GAIN adjustment value |
| | 4 | HDTV CR GAIN | 150 | HDTV Cr GAIN adjustment value |
| | 5 | HDTV Y OFFSET | 64 | HDTV Y OFFSET adjustment value |
| | 6 | HDTV CB OFFSET | 128 | HDTV CB OFFSET adjustment value |
| | 7 | HDTV CR OFFSET | 128 | HDTV CR OFFSET adjustment value |
| | 8 | HDTV A_CLAMP | 0 | |
| 8/20 | | | | |
| | 1 | ANALOG PC ADJ | Enter | DVI ANALOG video level adjustment |
| | 2 | R OFFSET | 64 | R CUTOFF adjustment value |
| | 3 | G OFFSET | 64 | G CUTOFF adjustment value |
| | 4 | B OFFSET | 64 | B CUTOFF adjustment value |
| | 5 | R GAIN | 44 | R DRIVE adjustment value |
| | 6 | G GAIN | 44 | G DRIVE adjustment value |
| | 7 | B GAIN | 44 | B DRIVE adjustment value |
| | 8 | RGB A_CLAMP | 0 | |
| 9/20 | | | | |
| | 1 | VCOM ADJ | 64 | Common bias adjustment |
| 10/20 | | | | |
| | 1 | DDR2 CHECK | Enter | Execute DDR check |
| | 2 | BA[1:0] | 0x00 | |
| | 3 | ADDR[13:0] | 0x0000 | |
| | 4 | DQ[15:0] | 0x0000 | |
| | 5 | FRC ON/OFF | Enter | Execute FRC ON/OFF |
| 11/20 | | | | |
| | 1 | R GAIN (LO) | 0 | R DRIVE adjustment value |
| | 2 | G GAIN (LO) | 0 | G DRIVE adjustment value |
| | 3 | B GAIN (LO) | 0 | B DRIVE adjustment value |
| | 4 | R GAIN (HI) | 0 | R DRIVE adjustment value |
| | 5 | G GAIN (HI) | 0 | G DRIVE adjustment value |
| | 6 | B GAIN (HI) | 0 | B DRIVE adjustment value |
| 12/20 | | | | |
| | 1 | MONITOR TIME OUT | ON | Monitor and the main communication time-out setting |
| | 2 | MONITOR MAX TEMP | 59 | MONITOR MAX temperature setting |
| | 3 | MONITOR EEP READ/WRITE | WRITE | MONITOR EEPROM READ/WRITE Setting/execution |
| | 4 | MONITOR EEP ADR | 0x 0 | MONITOR EEPROM arbitrary addressing |
| | 5 | MONITOR EEP DATA | 0x 0 | MONITOR EEPROM arbitrary data specification |
| 13/20 | | | | |
| | 1 | LCD TEST PATTERN | | |
| | 2 | LCD TEST PATTERN 1 | NOT SUPPORT | Pattern with built-in LCD controler display |
| | 3 | LCD TEST PATTERN 2 | OFF | |
| | 4 | LCD TEST PATTERN 3 | NOT SUPPORT | |
| | 5 | LCD TEST PATTERN 4 | NOT SUPPORT | |

| Page | Line | Item | Description | Remarks (adjustment detail, etc.) |
|---|---|---|---|---|
| 14/20 | | | | |
| | 1 | T-CON VERSION EXT.1 | | |
| | 2 | T-CON VERSION EXT.2 | | |
| | 3 | T-CON VERSION EXT.3 | | |
| | 4 | T-CON VERSION EXT.4 | | |
| 15/20 | | | | |
| | 1 | 3D HDMI FPGA Version | | |
| | 2 | 2D→3D FPGA Version | | |
| | 3 | 3D LED BRIGHTNESS | 90 | |
| | 4 | 3D IR EMITTER CONTROL | ON | |
| 16/20 | | | | |
| | 1 | CROSS TALK ADJ MODE | OFF | |
| | 2 | CROSS TALK TH1 | | |
| | 3 | CROSS TALK TH2 | | |
| | 4 | CROSS TALK TH3 | | |
| | 5 | CROSS TALK TH4 | | |
| | 6 | CROSS TALK GAIN1 | | |
| | 7 | CROSS TALK GAIN2 | | |
| | 8 | CROSS TALK GAIN3 | | |
| 17/20 | | | | |
| | 1 | WIFI SSID 2.4GHz | AF00 | |
| | 2 | WIFI SSID 5GHz | AF50 | |
| | 3 | WIFI RSSI 2.4GHz | -50 | |
| | 4 | WIFI RSSI 5GHz | -50 | |
| | 5 | WIFI TIME 2.4GHz | 10 | |
| | 6 | WIFI TIME 5GHz | 10 | |
| | 7 | WIFI RSSI TEST | 2.4GHz and 5GHz RSSI(Passive) | |
| | 8 | WIFI RSSI RESULT | 2.4GHz ERR - 1, 5GHz ERR - 1 | |
| 18/20 | | | | |
| | 1 | READ/WRITE | READ | Read/Write |
| | 2 | SLAVE/ADDRESS | SLAVE0 | Slave address |
| | 3 | REGISTER ADDRESS | 0x 0 | Register address |
| | | | 0x 0 | |
| | 4 | WRITE DATA | 0x 0 | Writing data |
| | | | 0x 0 | |
| | 5 | READ DATA | 0x 0 | Reading data |
| | | | 0x 0 | |
| 19/20 | | | | |
| | 1 | ERROR STANDBY CAUSE 1 | NO RECORD | ERROR STANDBY CAUSE |
| | 2 | ERROR STANDBY CAUSE 2 | NO RECORD | |
| | 3 | ERROR STANDBY CAUSE 3 | NO RECORD | |
| | 4 | ERROR STANDBY CAUSE 4 | NO RECORD | |
| | 5 | ERROR STANDBY CAUSE 5 | NO RECORD | |
| | 6 | STANDBY CAUSE RESET | OFF | Reset stand by cause. |
| 20/20 | | | | |
| | 1 | EEP SAVE | OFF | Writing setting values to EEPROM. |
| | 2 | EEP RECOVER | OFF | Reading setting values from EEPROM. |
| | 3 | MONITOR ERROR CAUSE RESET | OFF | Reset of monitor error cause |
| | 4 | MODEL NAME | LE840X | MODEL NAME |
| | 5 | PANEL SIZE | 60 | Panel size setting. |
| | 6 | VER UP FLAG ENABLE | Enter | |
| | 7 | PANEL LIMIT | ON | |
| | 8 | PANEL RANGE LIMIT | 230 | |
| | 9 | SHORT CHECK MODE | Enter | Check LED Back Light |
| | 10 | SHORT CHECK CURRENT | 60 | |
| | 11 | PRODUCT EEP ADR | 0x 0 | Don't touch when serving (for producer of factory) |
| | 12 | PRODUCT EEP DATA | 0x 0 | Don't touch when serving (for producer of factory) |
| | 13 | PRODUCT FACTORY | 0x 0 | Don't touch when serving (for producer of factory) |
| | 14 | TEST NETWORK UPDATE | NO | Don't touch when serving (for producer of factory) |

## 6. Special features

* STANDBY CAUSE (Page 1/20)

Display of a cause (code) of the last standby

The cause of the last standby is recorded in EEPROM whenever possible.

Checking this code will be useful in finding a problem when you repair the troubled set.

* EEP SAVE (Page 20/20)

Storage of EEP adjustment value

* EEP RECOVER (Page 20/20)

Retrieval of EEP adjustment value from storage area

## 7. STANDBY CAUSE FUNCTIONS

This model is equipped with a STANDBY CAUSE FUNCTIONS which stores the cause of why the unit is turned off and displays it on adjustment process mode.

1. NORMAL STANDBY CAUSE

   ERROR CODE here indicates cause of standby in normal operation or Function of the Unit.

   No display when the unit is turned off with R/C.

   Only the latest cause is indicated.

2. ERROR STANDBY CAUSE

   ERROR CODE here indicates cause of Error in the unit.

   It also indicates accumulated operating times of the unit.

   The last five histories are displayed.

   1)-5) five histories 1) is the latest.

   When there is no error, error code is '0' and no characters appear.

3. MONITOR ERROR CAUSE

   When the monitor micom detects an error, ERROR CODE is displayed.

   The number of flashing Power LED and OPC LED indicates location of error detected.

   This number stores the latest four contents of the error. '0' is displayed when no error.

**• NORMAL STANDBY CAUSE**

| Display Code | Indication | Description |
|---|---|---|
| 2 | NO_OPERT | in the cause of "no operation off" |
| 3 | NO_SIGNA | in the cause of "no signal off" |
| 6 | SLEEP_TM | in the cause of "SLEEP timer" |
| 8 | OFF_232C | in the cause of command by RS-232C |

**• ERROR STANDBY CAUSE**

| Display Code | Indication | Description |
|---|---|---|
| 1A | E_MONITR | in the cause of monitor trouble detected |
| 1C | E_CVICBT | in the cause of driver boot error |
| 22 | E_TCNERR | in the cause of software abmormality of LCD controller |
| 48 | E_MRESET | in the cause of failure of resetting menu settings (Initial Setup - Reset) |
| 50 | E_TCNF_S | in the cause of TCON FPGAStatus error |
| 54 | E_TCON_E | in the cause of fatal error by TCON hanging up |

**• MONITOR ERROR CAUSE**

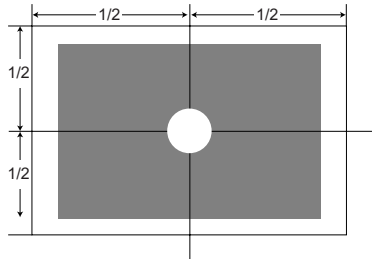
| Display | Error Reason | |
|---|---|---|
| 02 | Initial Communication Error 2 | Cannot receive initial communication from main CPU |
| 03 | Initial Communication Error 3 | Receive initial communication only |
| 04 | Initial Communication Error 4 | To the communication setting reception |
| 05 | Initial Communication Error 5 | To the initialization completion reception |
| 06 | Initial Communication Error 6 | To the notice of version reception |
| 07 | Initial Communication Error 7 | To the notice of start information reception |
| 08 | Initial Communication Error 8 | To the start information answer reception |
| 09 | Initial Communication Error 9 | To the time-out setting reception |
| 0A | Communication Error A | Request Time-out |
| 0B | Communication Error B | Restart Time-out |
| 0C | Communication Error C | End sequence Time-out |
| 0D | Communication Error D | Reserve start Time-out when End seqence |
| 0E | Communication Error E | Download Start Time-out |
| 0F | Communication Error F | Get Time Start Time-out |

| Display | Error Reason | |
|---|---|---|
| 11 | Communication Error H | Regular communication Time-out |
| 16 | LCD Module Error | Lamp Error |
| 1A | Other Error 2 | Monitor Temperature Error |
| 1D | Power supply Error1 | PS_ON(AC_DET) Error |
| 1E | Power supply Error 2 | D_POW(DET_13V) Error |
| 1F | Power supply Error 3 | D_POW(DET_D3V3) Error |
| 21 | Power supply Error 5 | Panel Power Error |
| 23 | Other Error 3 | Error Standby request from Main CPU |

## 8. Panel size and model setting

| | Adjustment item | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Panel size setting | • Page 20/20 of the process adjustment mode.<br>• To cancel it, turn off the power by pull out the AC cord. | 1) Use the cursor keys ( ▲ / ▼ ) and CH keys ( ∧ / ∨ ) of R/C to select the item [PANEL SIZE] on the page 20/20.<br>2) Verify that the panel size is displayed.<br>3) If the size doesn't match, select the values of the panel size with the VOL keys (+/-).<br>4) After selection in Step 3), press the OK key, and it is completed with OK displayed. |
| 2 | Model setting | | 1) Use the cursor keys ( ▲ / ▼ ) and CH keys ( ∧ / ∨ ) of R/C to select the item [MODEL NAME] on the page 20/20.<br>2) Verify that the Model name is displayed.<br>3) If the Model name doesn't match, select the values of the Model name with the VOL keys (+/-).<br>4) After selection in Step 3), press the OK key, and it is completed with OK displayed. |

## 9. LCD Panel Adjustment

| | Adjustment item | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Opposite bias adjustment (LCD module adjustment item) | Adjustment in the center position of the panel | 1. Enter the process mode using the process adjustment remote control.<br>2. Select [VCOM ADJ ] using the Channel ∧ / ∨ keys on the remote control.<br>3. Press the Enter key to check that the pattern for adjustment is displayed.<br>4. Make adjustment so that the flicker located in the center of the screen is minimized using the Volume +/- keys on the remote control.<br>5. If the optimum condition is obtained in step 4, press the Enter key to turn off the pattern.<br>CAUTION: * Make adjustment with no ANT signal (since the brightness is changed by the active backlight).<br>[Adjustment position]<br>  |

## 10. Video signal adjustment procedure

The adjustment process mode menu is listed in Section 5.

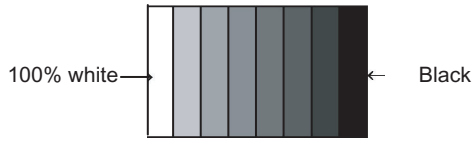
Signal generator level adjustment check (Adjustment to the specified level)

- Composite signal PAL/SECAM : 0.7Vp-p ± 0.02Vp-p (Pedestal to white level)
- RGB signal : 0.7Vp-p ± 0.02Vp-p
- 15K component signal (50 Hz) : Y level : 0.7Vp-p ± 0.02Vp-p (Pedestal to white level)
  : PB, PR level : 0.7Vp-p ± 0.02Vp-p
- 33K component signal (50 Hz) : Y level : 0.7Vp-p ± 0.02Vp-p (Pedestal to white level)
  : PB, PR level : 0.7Vp-p ± 0.02Vp-p
- Composite signal NTSC : 0.714Vp-p ± 0.02Vp-p (Pedestal to white level)

### 10.1. Entering the adjustment process mode

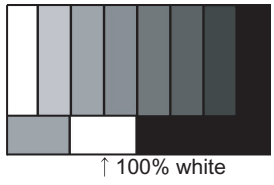
Enter the adjustment process mode according to Section 3.

### 10.2. PAL signal adjustment

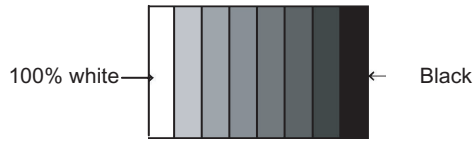
| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Setting | [Signal]<br>PAL<br>Full field colour bar composite signal<br><br>[Terminal]<br>INPUT6 video input | • Feed the PAL full field colour bar signal (75% colour saturation) to INPUT6 video input.<br>[VIDEO input signal]<br>  <br> |
| 2 | Auto adjustment performance | Adjustment process<br>[PAL ADJ]<br>page 4/20 | Bring the cursor on [PAL ADJ] and press [ENTER].<br>[PAL ADJ OK] appears when finished. |

* **ATTENTION:** Please execute [3. TUNER adjustment] afterwards if you adjust [2. PAL signal adjustment] after all adjustments are completed.

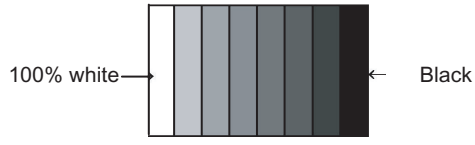
### 10.3. TUNER adjustment

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Setting | [Signal]<br>PAL split field colour Bar<br>RF signal UV<br><br>[Terminal]<br>TUNER | • Feed the PAL Split Field colour bar signal to TUNER.<br>• Make sure the PAL colour bar pattern has the sync level of 7:3 with the picture level.<br>[E-12CH]<br>  <br> |
| 2 | Auto adjustment performance | Adjustment process<br>[TUNER ADJ]<br>page 3/20 | Bring the cursor on [TUNER ADJ] and press [ENTER].<br>[TUNER ADJ OK] appears when finished. |

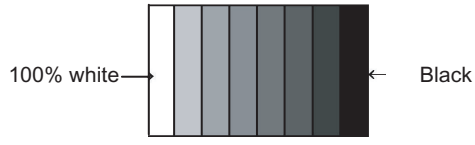
### 10.4. NTSC signal adjustment

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Setting | [Signal]<br>N358<br>Full field colour Bar Signal<br><br>[Terminal]<br>INPUT6 video input | • Feed the NTSC full field colour bar signal (75% colour saturation) to INPUT6 video input.<br>[VIDEO input signal]<br>  <br> |
| 2 | Auto adjustment performance | Adjustment process<br>[N358 ADJ]<br>page 4/20 | Bring the cursor on [N358 ADJ] and press [ENTER].<br>[N358 ADJ OK] appears when finished. |

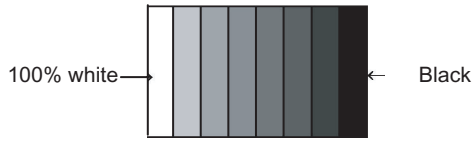
### 10.5. SECAM adjustment

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Setting | [Signal]<br>SECAM<br>Full field colour Bar Signal<br><br>[Terminal]<br>INPUT6 video input | • Feed the SECAM full field colour bar signal (75% colour saturation) to INPUT6 video input.<br>[VIDEO input signal]<br>  <br> |
| 2 | Auto adjustment performance | Adjustment process<br>[SECAM ADJ]<br>page 4/20 | Bring the cursor on [SECAM ADJ] and press [ENTER].<br>[SECAM ADJ OK] appears when finished. |

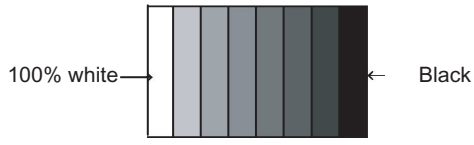
### 10.6. ADC adjustment (Component 15K)

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Setting | [Signal]<br>COMP15K, 50Hz (576i)<br>100% Full field colour bar Signal<br><br>[Terminal]<br>INPUT5 COMPONENT IN | • Feed the COMPONENT 15K 100% full field colour bar signal (100% colour saturation) to INPUT5 COMPONENT IN.<br>  <br> |
| 2 | Auto adjustment performance | Adjustment process<br>[COMP15k ALL ADJ]<br>page 6/20 | Bring the cursor on [COMP15k ALL ADJ] and press [ENTER] [COMP15k ALL ADJ] [OK] appears when finished. |

### 10.7. ADC adjustment (Component 33K)

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Setting | [Signal]<br>COMP33K, 50Hz (1080i/50Hz)<br>100% Full field colour bar Signal<br><br>[Terminal]<br>INPUT5 COMPONENT IN | • Feed the COMPONENT 33K 100% full field colour bar signal (100% colour saturation) to INPUT5 COMPONENT IN.<br>  |
| 2 | Auto adjustment performance | Adjustment process<br>[HDTV ADJ]<br>page 7/20 | Bring the cursor on [HDTV ADJ] and press [ENTER].<br>[HDTV ADJ OK] appears when finished. |

### 10.8. PC signal adjustment (ANALOG RGB)

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Setting | [Signal]<br>XGA, 60Hz<br>100% Full Field Colour Bar Signal<br><br>[Terminal]<br>INPUT7 PC IN | • Feed the XGA 60Hz 100% full field colour bar signal (100% colour saturation) to INPUT7 PC IN.<br>  |
| 2 | Auto adjustment performance | Adjustment process<br>[ANALOG PC ADJ] menu<br>page 8/20 | Bring the cursor on [ANALOG PC ADJ] and press [ENTER].<br>[ANALOG PC ADJ OK] appears when finished. |

## 11. White Balance Adjustment

For white balance adjustment, adjust the offset values on pages 11/20.

[Condition of the unit for inspection] : Modulated light (+16), Colour temperature (High)
AV MODE: DYNAMIC
Active Backlight: OFF
OPC: OFF
Asing Time: Min, 60 minute
[Input signal condition] : HDMI 1080i 15IRE (LO), 78IRE (HI)
[Adjustment reference device] : Minolta CA-210

[Adjustment procedure]

1) Display the current adjustment status at R/G/B_GAIN (HI). (Page 11/20 of process adjustment)

   The signal of 78IRE is input.

2) Read the value of the luminance meter. x = 0.272, y = 0.277

3) Change R_GAIN (HI)/B_GAIN (HI) (Adjustment offset value) on page 11/20 of process adjustment so that the values of the luminance meter approach x = 0.272 and y = 0.277.

   (Basically, G is not changed. If adjustment fails with R and B, change G. When G is lowered, the weaker of R or B must be fixed.)

4) Display the adjustment status of the current R/G/B_GAIN (LO).

   The signal of 15IRE is input.

   Change R_GAIN (LO)/B_GAIN (LO) (adjustment offset value) on page 11/20 of process adjustment so that the values of the luminance meter approach x = 0.272 and y = 0.277.

5) Both HI and LO are repeating the step from 1 to 4 until becoming an aim value.

   [Adjustment reference standard value]

   Adjustment spec ± 0.002 Inspection spec ± 0.004 (point LO)

   Adjustment spec ± 0.001 Inspection spec ± 0.002 (point HI)

6) After completing adjustments, set EEP SAVE (20/20) to ON in the process menu to save the white balance adjustment value.

## 12. Key writing

### 12.1. EDID writing (Main PWB: QPWBXF953WJ**)

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | HDMI EDID writing<br>ANALOG RGB EDID writing<br>(Main PWB) | Process mode<br>Model discrimination check | 1) Enter the process mode.<br>2) Point the cursor to [HDMI EDID WRITE] and press the [ENT] key.<br>The writing is complete when [OK] is displayed.<br>(If not written, HDMI does not function.)<br>CAUTION: Perform the data writing after setting the model discrimination. The data based on the model discrimination information is recorded in EEPROM. |

### 12.2. MAC key writing (MAIN PWB: QPWBXF953WJ**)

1. Write the MAC key data on XXXX mounted on the main PWB.
2. Carry out thorough data management to avoid redundant writing of data.

   If the IC where data is written is damaged, replace the PWB since only the IC cannot be changed.

## 13. Factory setting

After completing the factory setting, pull out the AC cord to complete the setting.

CAUTION: Do not turn on the power after completing the factory setting. If the power is turned on, configure the factory setting again.

| | Adjustment point | Adjustment conditions | Adjustment procedure |
|---|---|---|---|
| 1 | Factory setting | Complete the setting by pulling out the AC cord. | •Point the cursor to [INDUSTRY INIT], set to “ON” using [+]/[-] of the [VOL] key, and press the [ENT] key.<br>* Please confirm the country following to the below list.<br><br>Setting / Suffix / Country<br>AUSTRALIA / X / Australia<br>NEWZEALAND / D / New Zealand<br>GENERAL / B / Thailand<br>GENERAL / Z / Other country<br><br>The version confirmation screen appears on the green screen. It is completed when [SUCCESS] is displayed at the top.<br>(If error occurs, [ERROR] is displayed on the red screen.)<br>•Turn off the AC power. |
| | | | The following items are initialized when configuring the factory setting.<br>1) User set value<br>2) Channel data (broadcasting frequency, etc.)<br>3) Password setting value<br>4) Operating time<br>5) StandbyCause<br>6) Auto installation flag<br>7) V-CHIP block setting value |

## 14. Software version

1. Main microprocessor

   LEON_LE740X_xxx.USB
2. Monitor microprocessor

   LEONSUBxxx.SMB

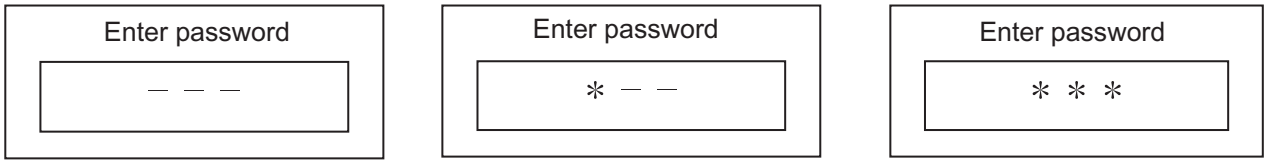
# [2] PUBLIC MODE SETTING PROCEDURE

## 1. How to start Public Mode

Starting the Public Mode

- There is one following ways to display the PUBLIC Mode setting screen.

1) Method of needing password
   a) Press the "INPUT" and "VOL (+)" keys on the set at once and turn on the power.
   b) Display the Pass Word input screen.




   Operation procedure
   - The initial input position is the digit at the left end.
   - For the numeric keys “0” to “9” of R/C, key input is accepted.
     Input of the other keys is prohibited.
   - Change “—” to “ * ” by inputting the numeric key at the input position, and shift the input position rightward one digit.
   - When three digits are completely input, the Pass Word is judged.

   c) Check the Pass Word by inputting three digits.
      If the Pass Word “0” “2” “7”, it shifts to the PUBLIC Mode setting screen.
      In another case, the screen is erased, and it operates in the ordinary mode.

2) In the adjustment process mode, turn on “PUBLIC MODE”. Also press the “CH ( ﹀ )” or “CH ( ﹀ )” and “VOL(+)” keys on the set at once and turn on the power.

## 2. How to exit Public Mode

There are the following ways to quit the public mode setup screen.

- Turn off “PUBLIC MODE” in the adjustment process mode. (☆) ← This way alone is not for quitting the setup screen, but for quitting the mode itself.
- Turn off the power with the “POWER” key. (★)
- Select “EXECUTE”. (★)

★... “PUBLIC MODE” stays on in the adjustment process mode.

☆... The settings will be back to the factory ones.

## 3. Public Mode Setting Values

- With the factory settings made, the public mode settings get initialized. (The adjustment process remains intact.)

### 4. Public Mode Menu

The guidance is not displayed on screen.

Setup procedure

- To move the cursor up and down, use the “cursor UP/DOWN” key (remote controller) and “CH ( ∧ )/( ∨ )” key (remote controller and set).
- To change the settings, use the “cursor RIGHT/LEFT” key (remote controller) and “VOL (+)/(–)” key (remote controller and set).
- To save new settings, keep the cursor at “EXECUTE” and use “ENTER” key (remote controller and set).

```
PUBLIC MODE
  POWER ON FIXED                [VARIABLE ]
  SHUT DOWN MODE                [NORMAL   ]
  MAXIMUM VOLUME                [     100 ]
  VOLUME FIXED                  [VARIABLE ]
  VOLUME FIXED LEVEL            [      30 ]
  RC BUTTON                     [RESPOND  ]
  PANEL BUTTON                  [RESPOND  ]
  MENU BUTTON                   [RESPOND  ]
  AV POSITION FIXED             [VARIABLE ]
  ON SCREEN DISPLAY             [YES      ]
  INPUT MODE START              [NORMAL   ]
  INPUT MODE FIXED              [VARIABLE ]
  LOUD SPEAKER                  [ON       ]
  RC PATH THROUGH               [OFF      ]
  232C POWON                    [DISABLE  ]
  PUBLIC MODE                   [OFF      ]
  RESET
  EXECUTE
```

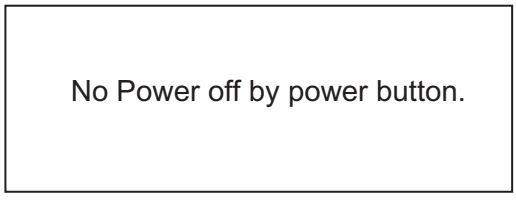
## 5. On Setting Items

1) Power ON fixed [POWER ON FIXED]

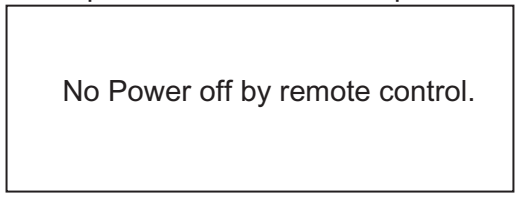
| | |
|---|---|
| Option | "VARIABLE", "FIXED_ALL", "FIXED_BODYKEY" or "RCRESPOND" (loop enabled) |
| Default | "VARIABLE" |
| Function | • VARIABLE : "POWER/RECEPTION" key on TV unit or remote control is enabled.<br>• FIXED_ALL : "POWER/RECEPTION" key on TV unit or remote control is disabled.<br>• FIXED_BODYKEY : Only the "MAIN POWER" key on TV unit is disabled (The remote control is enabled).<br>• RC RESPOND : The main unit's POWER switch toggles between ON and Standby (the same operation by the remote control). |
| Key disabled when set other than default | • OFF TIMER (SLEEP) (*Only when setting to FIXED_ALL) |
| Remarks | • When selecting to "FIXED_ALL", function related standby factors (see below) doesn't work. and not selecting.<br>OFF TIMER (Sleep)<br>No operation OFF<br>No signal OFF (including the power management)<br>* These items does not exist according to the model. |

If the power button is pressed in the ordinary mode in setting to "FIXED_ALL" and "FIXED_BODYKEY", the caution is displayed for 5 seconds.

When power button on the main unit is pressed




When power button on R/C is pressed




* The OSD display is an example.

If another ODS is previously displayed, the status is reset (MENU or similar).

2) Instantaneous current shutdown setting in turning off the power [SHUT DOWN MODE]

| | |
|---|---|
| Option | "NORMAL" or "QUICK" |
| Default | NORMAL |
| Function | • This function decides whether scanning digital tuner is enabled or disabled when the power is standby. |
| | NORMAL : Scanning digital tuner is enabled when the power is standby.<br>QUICK : Scanning digital tuner is disable.<br>It is possible to put into the standby state instantaneously due to power off input, when the power is standby.<br>Immediately, state is a complete standby. |
| Remarks | In selecting "QUICK", the function does not work for the following items. (selection impossible.)<br>• ON TIMER, QUICK START, DIGITAL FIXED, etc.<br>* These items does not exist according to the model. |

3) Volume maximum level [MAXIMUM VOLUME]

| | |
|---|---|
| Option | 0~100 (loop disabled) |
| Default | 100 |
| Function | The volume cannot be increased more than the adjusted value (the main unit's speaker only). |
| Remarks | • When setting to 59 or less, only the figure is displayed in the normal mode; the volume bar is not displayed.<br>• The volume of the headphones is limited.<br>• The setting is impossible when VOLUME FIXED is set to FIXED. |

4) Volume fixed [VOLUME FIXED]

| | |
|---|---|
| Option | "VARIABLE", "FIXED", "ACCTRL" or "AC/RCCTRL" (loop enabled) |
| Default | "VARIABLE" |
| Function | • VARIABLE : The volume is not fixed.<br>• FIXED : The volume is fixed to the value adjusted in the volume fixed level.<br>• AC CTRL : The unit starts at the volume specified in the volume fixed level, when power is turned on in the case of the AC-ON only.<br>• AC/RC CTRL : The unit starts at the volume specified in the volume fixed level, when power is turned on in any case.<br>(AC→ON, remote control→ON, main utit's key→ON) |
| Exception | • In the adjustment process, the volume can be set to any level regardless of this setting. |
| Disabled key when setting to FIXED | • VOLUME UP/DOWN [both remote control and main unit]<br>• MUTE<br>* Main units's key is enabled for operating menu. |
| Remarks | • [MAXIMUM VOLUME] has priority to [VOLUME FIXED]<br>* When setting to FIXED, Maximum volume is fixed.<br>• The volume of the headphones is fixed.<br>• When setting to "FIXED", the volume is not displayed in operating Disabled key.<br>• In menu operation, the main unit's keys (Vol (+/-)) are enabled. |

5) Volume fixed level [VOLUME FIXED LEVEL]

| | |
|---|---|
| Option | 0~100 (loop disabled) |
| Default | 30 |
| Function | The volume is fixed to the adjusted value (the main unit's speaker only). |
| Exception | • In the adjustment process, the volume can be set to any level regardless of this setting. |
| Remarks | • When [VOLUME FIXED] is set to "VARIABLE", the setting cannot be changed. |

6) Remote control operation [RC BUTTON]

| | |
|---|---|
| Option | "RESPOND", "NORESPOND" or "LIMITED" (loop enabled) |
| Default | "RESPOND" |
| Function | The operation of the remote control's keys is set.<br>RESPOND : The remote control's keys in the normal state are enabled.<br>NO RESPOND : The remote control's keys in the normal state are disabled.<br>The POWER key (RECEPTION/STANDBY key) is also disabled.<br>LIMITED : Only a part of keys (CHANNEL, etc.) is enabled and other keys are disabled. |
| Exception | • All the keys are enabled regardless of this setting while entering the adjustment process mode, inspection mode or Public Mode setting screen. |
| Remarks | The enable keys when setting to "LIMITED" are depended on Model. |

7) Main Unit Operation [PANEL BUTTON]

| | |
|---|---|
| Option | "RESPOND" or "NO RESPOND" (loop enabled) |
| Default | "RESPOND" |
| Function | • RESPOND : The main unit's keys are enabled.<br>• NO RESPOND : The main unit's keys are disabled excluding the POWER key (RECEPTION/STANDBY key). |
| Exception | • The start operation in the adjustment process mode, inspection mode are enabled regardless of this setting.<br>• All the keys are enabled regardless of this setting while entering the adjustment process mode, inspection mode or Public Mode setting screen.<br>• For the models with the MENU key on the main unit, menu operation is possible regardless of the setting during the initial setting when the power is turned on for the first time. |

8) Menu operation [MENU BUTTON]

| | |
|---|---|
| Option | “RESPOND” or “NO RESPOND” (loop enabled) |
| Default | “RESPOND” |
| Function | The MENU key on the main unit and remote control is decided whether it is enabled or disabled. |
| Exception | • RESPOND : The manu key is enabled.<br>• NO RESPOND : The manu key is disabled.<br>: All the keys are enabled regardless of this setting while entering the process mode, inspection mode or Public Mode setting screen. |
| Disabled key excluding Menu key when setting to not default | All the direct transition keys to menu display. (AUTO PRESET, MANUAL MEMORY and others)<br>* These keys does not exist according to the model. |
| Remarks | When setting to “NO RESPOND”<br>• For the models with the MENU key on the main unit, menu operation is possible regardless of the setting while the initial setting when the power is turned on for the first time. |

9) AV position fixed [AV POSITION FIXED]

| | |
|---|---|
| Option | “VARIABLE” or “FIXED” (loop enabled) |
| Default | “VARIABLE” |
| Function | • VARIABLE : AV position is not fixed.<br>• FIXED : AV position is fixed.<br>: The image/sound adjustment items in the menu are fixed in the selected state.<br>: When receiving “AV POSITION” of the remote control, only the actual state is displayed, and setting is not changed. |
| Remarks | • When receiving the sound select direct keys (AV POSITION key, OPC, DOLBY key, etc.), only the actual state is displayed; no setting is changed.<br>* These keys does not exist according to the model.<br>• The settings for the Public mode are retained after the personal data is initialized, each item for the AV position and image/sound adjustment are not initialized. |

10) OSD display [ON SCREEN DISPLAY]

| | |
|---|---|
| Option | “YES”, “NO” or “LIMITED” (loop enabled)<br>“LIMITED” is looped only in case of need (destination). |
| Default | “YES” |
| Function | • YES : OSD is displayed.<br>• NO : The following OSD is not displayed.<br>Registration, setting, adjustment menu, channel call, volume bar, and input select.<br>• LIMITED : Only a part of OSD (CH call: “New Information” etc...) is not displayed. |
| Key which may be enabled (Example of the confusing key) | • It is OK in the case that simple input select occur or the original state returns soon automatically. |
| Disabled key when setting to not default | • When setting to “NO”, the keys which is related to visibility of the screen and sound cannot be used.<br>STILL IMAGE, SCREEN DISPLAY, OFF TIMER, AV POSITION, BRIGHTNESS SENSOR, SCREEN SIZE SELECT, AUTO PRESET, MANUAL MEMORY, IMAGE SELECT, SOUND SELECT, LANGUAGE, Closed caution<br>* Disabled keys dependeds on the models. |
| Remarks | • When setting to “NO”,<br>ON TIMER (Watching reservation) is cleared.<br>OFF TIMER “SLEEP” is cleared.<br>* These items does not exist according to the model.<br>• When setting to “NO”,<br>These Displays (Version-up, Public mode setting screen, Pass Word input screen of Public Mode, the adjustment process mode, K mark of inspection mode) are enabled regardless of this setting. |

11) Start mode [INPUT MODE START]

| | |
|---|---|
| Option | “NORMAL” or “Input source 1 (input selection or channel)” ... (loop enabled) |
| Default | “NORMAL” |
| Function | Which kinds of input source or channel is decided when the power turning on.<br>NORMAL : The content of the last memory is followed. |
| Remarks | • When setting to not Normal, ON TIMER (Watching reservation) has priority.<br>• When setting to “NORMAL”, [INPUT MODE FIXED] is set to “VARIABLE” and [INPUT MODE FIXED] is prohibited to select. (selection impossible.) |

Example of option: “NORMAL”, “TVD (002TV)”, “INPUT1”, “INPUT2”, “INPUT3”, “HDMI1”, “HDMI2”, “HDMI3”, “HDMI4”.

12) Input fixed [INPUT MODE FIXED]

| | |
|---|---|
| Option | “VARIABLE”, “FIXED”, “ACCTRL” or “AC/RCCTRL” (loop enabled) |
| Default | VARIABLE |
| Function | VARIABLE : If [INPUT MODE START] is set to Normal, input mode is not fixed.<br>FIXED : When “INPUT MODESTART” is active, it is impossible to switch to another channel or input source.<br>AC CTRL : When “INPUT MODESTART” is active the unit starts at the input mode which is selected when power is turned on in the case of the AC-ON only.<br>AC/RC CTRL : When “INPUT MODESTART” is active the unit starts at the input mode which is selected when power is turned on in any case.<br>(AC→ON, remote control→ON, main utit's key→ON) |
| Disabled key when setting to “FIXED” | CHANNEL (+/-), DIRECT CHANNEL buttons, FLASHBACK, INPUT SELECT, TV/VIDEO, AUTO PRESET, MANUAL MEMORY, i.LINK, DIRECTINPUTSELECT, ATV, DTV, EPG, RADIO etc... |
| Remarks | • If [INPUT MODE START] is Normal, this function cannot be set.<br>Set to “VARIABLE” automatically.<br>• When setting to “FIXED”,<br>The item related to the channel setting and input selection in Menu are not displayed.<br>ON TIMER (Watching reservation) is not active.<br>* These items does not exist according to the model. |

13) Speaker ON/OFF selection [LOUD SPEAKER]

| | |
|---|---|
| Option | “ON” or “OFF” (loop enabled) |
| Default | ON |
| Function | ON : The sound from the speakers is output.<br>OFF : The sound from the speakers is not output even if the headphones are not used. |
| Remarks | • When the VOL (+/-) key is pressed, the mute icon is displayed for 4 seconds.<br>• For the MUTE key and sound-related keys, caution is displayed.<br>• For the headphones, normal operation is possible. |

14) Remote control path through [RC PATH THROUGH]

| | |
|---|---|
| Option | “OFF”, “ON: TVRCE” or “ON: TVRCD” (loop enabled) |
| Default | OFF |
| Function | The item decide whether the signal received by the remote control’s light-receiving section is output to the blankpin (9pin) of RS232C.<br>OFF : This function is not active.<br>ON: TVRCE : This function is active, and remote control is active, too.<br>ON: TVRCD : This function is active, but remote control is not active. |
| Exception | • In the case of “ON: TV RCD”, the start operation in the adjustment process mode, inspection mod are enabled regardless of this setting.<br>• In the case of “ON: TV RCD”, all the keys are enabled regardless of this setting while entering the adjustment process mode, inspection mode or Public mode setting screen. |
| Remarks | * Remote control path through does not exist according to the model. |

15) 232C power ON control [232C POWON]

| | |
|---|---|
| Option | “ENABLE” or “DISABLE” (loop enabled) |
| Default | DISABLE |
| Function | The item decide whether Power ON by the 232C command is enabled/disabled in the standby state.<br>The same function as 232C command “RSPW”.<br>ENABLE : POWR0001 is always enabled.<br>DISABLE : Start-up may be impossible at POWR0001.<br>(If the 232C command reception module is set to OFF, the command is invalid.) |

16) Public mode setting [PUBLIC MODE]

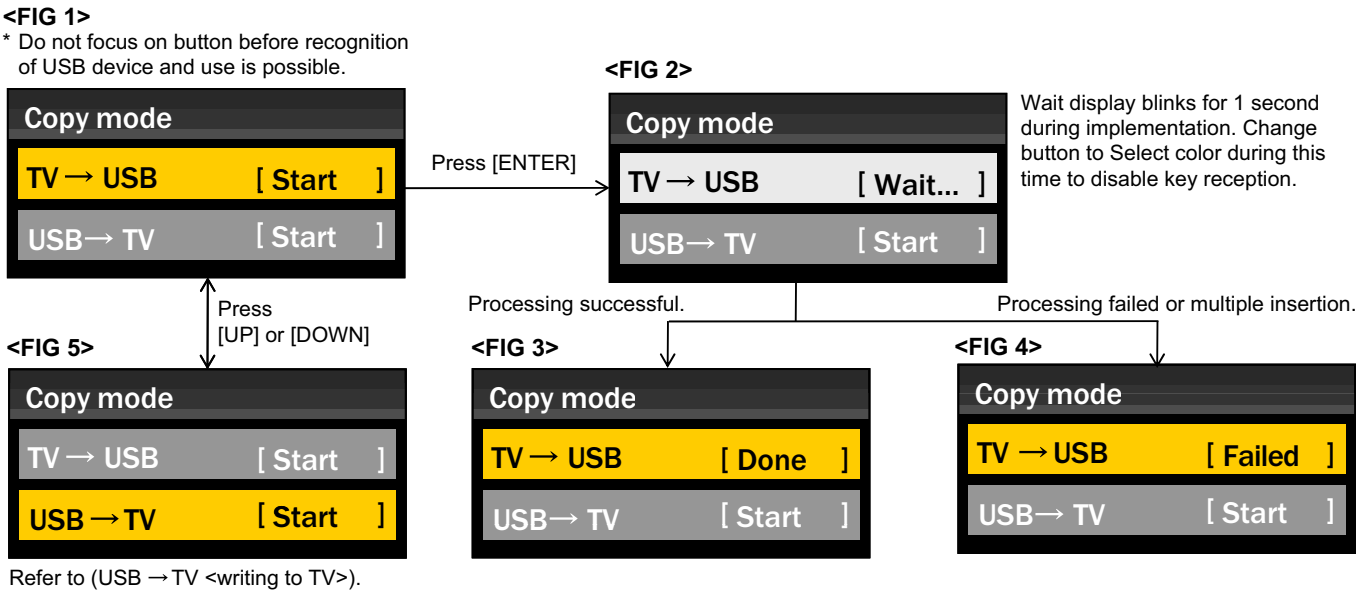
| | |
|---|---|
| Option | “OFF” or “ON” (loop enabled) |
| Default | OFF |
| Function | The item decide whether Public mode setting menu are enabled or disabled.<br>The same item as [PUBLIC MODE] in the adjustment process menu.<br>OFF : Public mode is not active.<br>ON : Public mode is active. |
| Remarks | Each operation of the Public mode is impossible unless this item is set to ON. |

## [3] USB Clone Specifications

Input “369” as password on the copy mode screen using the same input method as Public Mode on the previous page.

### 1. Screen Specifications (copy mode <TV→USB>)

- TV→USB (sucking from TV)

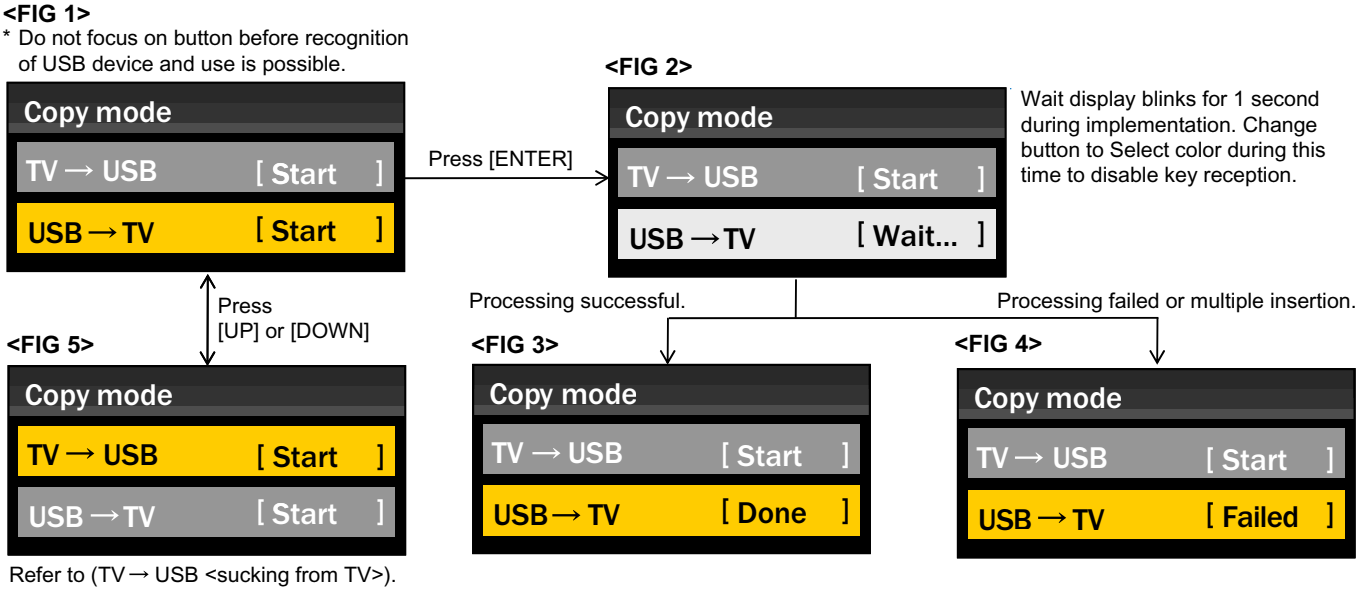



Refer to (USB → TV <writing to TV>).

- After finishing processes in FIG 2, return the button to Focus color.
- On USB clone display screen in FIG 1 and FIG 5, key reception is disabled except for Up/Down key and Enter key.
- Key reception is disabled in USB clone display screen in FIG 2 to FIG 4.
- After proceeding to FIG 3, 4, turn off the power with AC OFF.

### 2. Screen Specifications (copy mode <USB→TV>)

- USB→TV (writing to TV)




Refer to (TV → USB <sucking from TV>).

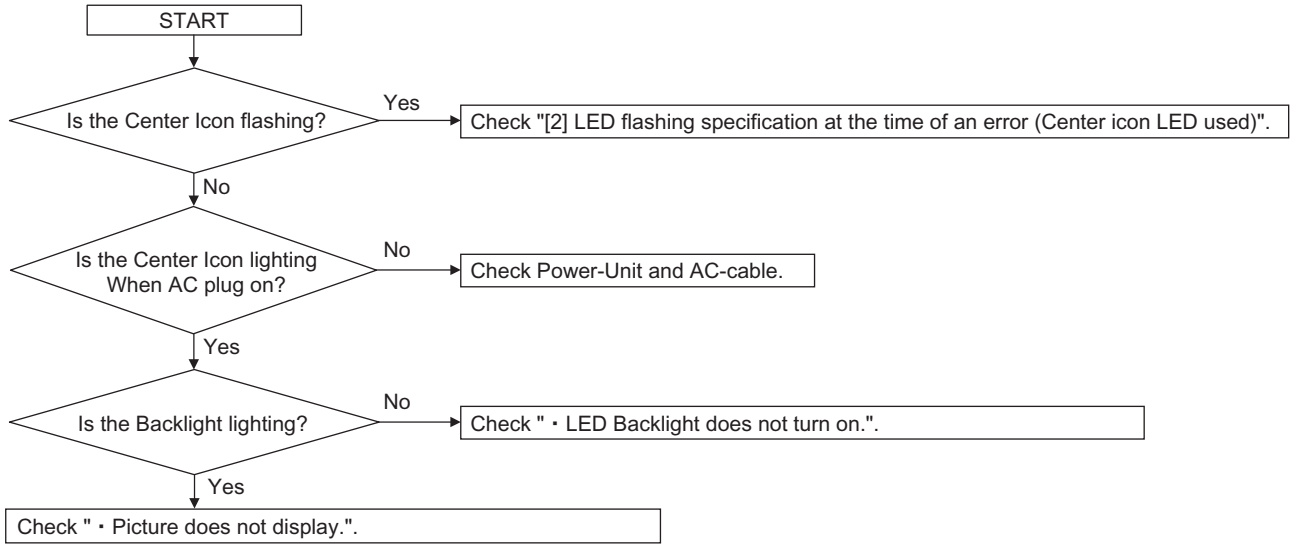
- After finishing processes in FIG 2, return the button to Focus color.
- On USB clone display screen in FIG 1 and FIG 5, key reception is disabled except for Up/Down key and Enter key.
- Key reception is disabled in USB clone display screen in FIG 2 to FIG 4.
- After proceeding to FIG 3, 4, turn off the power with AC OFF.

### 3. USB Clone Restrictions

- Be sure to set the network setting (Setup/View setting/Network setup) after writing the data by USB Clone (USB→TV).
- Use USB memory with a memory capacity of 1M byte or greater.
- The USB memory file system is FAT (FAT32).
- No connection of multiple USB memories to the USB port.
- If the USB memory connection is one connection, carry out clone operations regardless of what USB port it is connected to.
- Up until recognition of the USB device and usage enable, do not focus on the button shown in FIG 1 of the “1. Screen Specifications (copy mode <TV→USB>)” and “2. Screen Specifications (copy mode <USB→TV>)” (maximum 45 seconds).
- The following must agree during sucking from TV (TV→USB) and writing to TV (USB→TV).
  - · Vender name (fixed)
  - · Key information (fixed)
  - · USB Clone Ver.
  - · Inch size
  - · Shipping destination settings
  - · Model name
  - · Software version

# CHAPTER 6. TROUBLESHOOTING TABLE

## [1] Failure diagnosis by LED in front of cabinet




## [2] LED flashing specification at the time of an error (Center icon LED used)

### 1. Display method

- Since only the center icon LED can be used, slow flashing and fast flashing are combined.
- After recovering from an error, if the same error cannot be generated again, refer to MONITOR ERR CAUSE on the adjustment process mode.

### 2. LED flashing method

**Error flashing**

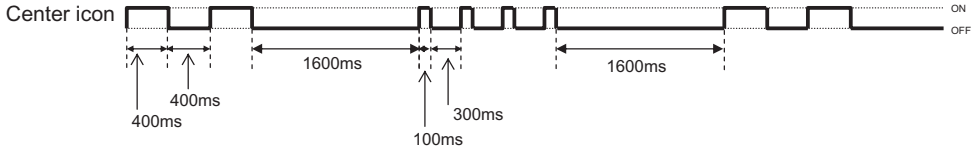


Table 1. Concrete flashing pattern

| Item | Detail display | | Cause |
|---|---|---|---|
| | Slow flashing | Fast flashing | |
| Inverter/Lamp system failure | Flashes once | Flashes once | Lamp error |
| Power PWB failure (Power failure, etc.) | Flashes twice | Flash once | Power supply error 2 (*2) AC_DET error |
| | | Flash twice | Power supply error 2 (*2) UR+13V error |
| | | Flash 3 times | Power supply error 2 (*2) D+3.3V error |
| | | Flash 5 times | Panel power supply error |
| Main PWB failure (Communication failure, etc.) | Flashes 3 times | Flashes once | Initial communication error |
| | | Flashes twice | Start-up confirmation communication error |
| | | Flashes 3 times | Regular communication error |
| | | Flashes 5 times | Other communication error |
| Others | Flashes 4 times | Flashes once | Temperature error |
| | | Flashes 3 times | Notification from the main microprocessor (*3) |

*2: They depend on the system. Power supply error is defined from product to product.

*3: For details, refer to ERROR STANDBY CAUSE on the adjustment process mode.

## 3. New method

**LED flashing timing chart at the time of an error**

**1) Inverter/Lamp failure details (Flashes slowly once and flashes fast)** Note

| Error type | Center icon LED operation | Pins are monitor microprocessor pins unless otherwise specified. |
|---|---|---|
| Lamp failure<br>Flashes fast once | H: On<br> <br>L: Off | ERR_PNL: failure (H). Inverter / Lamp error is detected. Note that after five detection counts, the lamp cannot be activated except in the adjustment process mode. Accumulated counts are cleared to 0 by the setting in the LAMP ERROR RESET on the adjustment process mode. |

**2) Power failure details (Flashes slowly twice and flashes fast)** Note

| Error type | Center icon LED operation | Pins are monitor microprocessor pins unless otherwise specified. |
|---|---|---|
| PS_ON<br>AC_DET failure<br>Flashes fast once | H: On<br> <br>L: Off | AC_DET failure (L). |
| SM_POW<br>Main 13V failure<br>Flashes fast twice | H: On<br> <br>L: Off | DET_13V failure (L). Main 13V is not applied. |
| D_POW<br>Digital 3.3V failure<br>Flashes fast 3 times | H: On<br> <br>L: Off | DET_D3V3 failure (L). Digital 3.3V is not applied. |
| PANEL_POW<br>Panel 12V failure<br>Flashes fast 5 times | H: On<br> <br>L: Off | DET_PNL12V failure (L). Panel power is not applied. |

**3) Communication failure details (Flashes slowly 3 times and flashes fast)** Note

| Error type | Center icon LED operation | Basically, debug print logs are analyzed or communication logs are analyzed by a bus monitor. |
|---|---|---|
| Initial communication reception failure<br>Flashes fast once | H: On<br> <br>L: Off | Initial communication from the main CPU is not received. (Request for the monitor model No. is not received.)<br>→ Communication line failure or main CPU start-up failure |
| Start-up confirmation reception failure<br>Flashes fast twice | H: On<br> <br>L: Off | Start-up reason confirmation from the main CPU cannot be received. (Start-up communication until start-up reason notification command is not received.)<br>→ Main CPU start-up failure or monitor microprocessor reception failure |
| Regular communication failure<br>Flashes fast 3 times | H: On<br><br>L: Off | Regular communication that is performed at 1 second intervals in the normal operation is interrupted.<br>→ Main CPU operation failure or monitor microprocessor reception failure |
| Other communication failure<br>Flashes fast 5 times | H: On<br><br>L: Off | When a request (PM_REQ=H) is sent from the main microprocessor, the request command is not output from the main CPU, etc.<br>→ Main CPU operation failure or monitor microprocessor reception failure |

**4) Other failure details (Flashes slowly 4 times and flashes fast)** Note

| Error type | Center icon LED operation | Pins are monitor microprocessor pins unless otherwise specified. |
|---|---|---|
| Monitor temperature failure<br>Flashes fast once | H: On<br> <br>L: Off | If the panel temperature is 60°C or more for 15 seconds or more in a row, CAUTION appears on the OSD (flashes in red in the lower right screen).<br>If the panel temperature is 60°C or more for 25 seconds or more in a row, error standby is activated. |
| Main failure<br>Flashes fast 3 times | H: On<br> <br>L: Off | Main microprocessor detection error (CPU temperature error, etc.)<br>The details are displayed on page 1 of the adjustment process mode. |

## [3] TROUBLESHOOTING TABLE

**• LED Backlight does not turn on.**

**If it is not an error of power supply/LED driver,**
**It is start-up in the lamp error disregard mode.**

↓

Do you start?

↓ YES

When main unit is replaced, does it start normally?

↓ YES

Replace main unit.

↓ NO

When LCD control unit is replaced, does it start normally?

↓ YES

Replace LCD control unit.

↓ NO

When the parts in the panel can be replaced. →Replace all LED-bars in the panel module.
When the parts in the panel cannot be replaced. →Replace panel module.

**If it is not an error of power supply/LED driver,**
**It is start-up in the lamp error disregard mode.**

↓

Do you start?

↓ NO

When power supply unit is replaced, does it start normally?

↓ YES

Replace power supply unit.

↓ NO

When main unit is replaced, does it start normally?

↓ YES

Replace main unit.

↓ NO

When LCD control unit is replaced, does it start normally?

↓ YES

Replace LCD control unit.

↓ NO

When the parts in the panel can be replaced. →Replace all LED-bars in the panel module.
When the parts in the panel cannot be replaced. →Replace panel module.

**Trouble Shooting Panel Module**

When C-S FPC is replaced, does screen display normally?

YES

Replace C-S FPC.

NO

When C-PWB is replaced, does screen display normally?

YES

Replace C-PWB.
(Adjust “VCOM ADJ” after replace C-PWB)

NO

Replace Panel HIRAKI.
(Adjust “VCOM ADJ” after replace Panel HIRAKI)

**• Picture does not display.**

Trouble Shooting LCD controller board(C-PWB)

↓

A screen isn't displayed.
(The LED Backlight has shone at start-up)

→ YES

- It is checked whether PL/LW is connected correctly.
- Replace another C-PWB.

↓ NO

Please enter the adjustment process mode and display "LCD TEST PATTERN 2" of 13 page.
Please press volume (-)/(+) keys and a test pattern is displayed.
Is it all usually displayed?

→ YES

It isn't the fault of a C-PWB.
Please check operation with reference to other items.

↓ NO

Is only the half of the right screen or the left screen displayed normally?

→ YES

- It is checked whether FFC (to Panel) is connected correctly.
- Replace another C-PWB.

↓ NO

Please check the C-PWB.
Replace another board.

**<HDMI input> No video (1)-1**

↓

**HDMI: No external input video [INPUT-1]**

↓

Is INPUT-1 selected on the input select menu screen?

NO → Select INPUT-1 on the input select menu screen for the right input signal.

↓ YES

Does the HOT PLUG detection function?
Does the DDC5V signal come from pin (18) of SC1501 to pin (60) of IC2601 (HDMI_SW)?

NO → Check the line between the pin(18) of SC1501 and the pin(60) of IC2601.

↓ YES

Does the HPD signal come from pin (59) of IC2601 to pin (19) of SC1501?

NO → Check the line between the pin (19) of SC1501 and the pin (59) of IC2601.

↓ YES

Is IC2601(HDMI-SW) accessed by I2C, with HDMI connected, to read the DDC-I2C SCL/SDA data?

NO → Check the DDC-I2C line and its peripheral circuits.
①SC1501 pin(15)(SCL), pin(16)(SDA)
②IC2601 pin(58), pin(57)

↓ YES

Are there the TMDS signal at input pins of IC3301(CPU)?

NO → Check the TMDS line (between SC1501 and IC2601) and its peripheral circuits.
[IC2601 TMDS input pins]
pin(26/27)(CLK-/+), pin(28/29)(D0-/+), pin(30/31)(D1-/+), pin(31/33)(D2-/+).

Check the TMDS line (between IC2601 and IC3301) and its peripheral circuits.
[IC3301 TMDS input pins]
pin(AH35/AH34)(CLK-/+),
pin(AG35/AG34)(D0-/+),
pin(AG37/AG36)(D1-/+),
pin(AF35/AF34)(D2-/+).

Check the I2C line (between IC2601 and IC3301).
①IC2601:pin(71)(SCL), pin(70)(SDA)
②IC3301:pin(AN12), pin(AP12)

Check IC2601 and its peripheral circuits.

↓ YES

Is the T-CON PWB connected?
VBO_LOCKN pin (40) of SC3801 become Low if there is no problem in the connection.

NO → Check the T-CON PWB and harness.
Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

↓ YES

Are the V-By-One HS signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO → Check IC3301 and its peripheral circuits.
(IC3501/IC3502/IC3503/IC3504, etc.)

↓ YES

Check the panel module and harness.

**<HDMI input> No video (1)-2**

↓

**HDMI: No external input video [INPUT-2]**

↓

Is INPUT-2 selected on the input select menu screen?

NO → Select INPUT-2 on the input select menu screen for the right input signal.

↓ YES

Does the HOT PLUG detection function?
Does the DDC5V signal come from pin (18) of SC1502 to pin (75) of IC2601 (HDMI_SW)?

NO → Check the line between the pin(18) of SC1502 and the pin(75) of IC2601.

↓ YES

Does the HPD signal come from pin (74) of IC2601 to pin (19) of SC1502?

NO → Check the line between the pin (74) of IC2601 and the pin (19) of SC1502.

↓ YES

Is IC2601(HDMI-SW) accessed by I2C, with HDMI connected, to read the DDC-I2C SCL/SDA data?

NO → Check the DDC-I2C line and its peripheral circuits.
①SC1501 pin(15)(SCL), pin(16)(SDA)
②IC2601 pin(73), pin(72)

↓ YES

Are there the TMDS signals at input pin of IC3301(CPU)?

NO →
- Check the TMDS line (between SC1502 and IC2601) and its peripheral circuits.
  [IC2601 TMDS input pins]
  pin(17/18)(CLK-/+), pin(19/20)(D0-/+), pin(21/22)(D1-/+), pin(23/24)(D2-/+).
- Check the TMDS line (between IC2601 and IC3301) and its peripheral circuits.
  [IC3301 TMDS input pins]
  pin(AH35/AH34)(CLK-/+),
  pin(AG35/AG34)(D0-/+),
  pin(AG37/AG36)(D1-/+),
  pin(AF35/AF34)(D2-/+).
- Check the I2C line (between IC2601 and IC3301).
  ①IC2601:pin(71)(SCL), pin(70)(SDA)
  ②IC3301:pin(AN12), pin(AP12)
- Check IC2601 and its peripheral circuits.

↓ YES

Is the T-CON PWB connected?
VBO_LOCKN (40pin) of SC3801 become Low if there is no problem in the connection.

NO → Check the T-CON PWB and harness.
Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

↓ YES

Are the V-By-One HS signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO → Check IC3301 and its peripheral circuits.
(IC3501/IC3502/IC3503/IC3504, etc.)

↓ YES

Check the panel module and harness.

**<HDMI input> No video (1)-3**

↓

**HDMI: No external input video [INPUT-3]**

↓

Is INPUT-3 selected on the input select menu screen?

NO → Select INPUT-3 on the input select menu screen for the right input signal.

↓ YES

Does the HOT PLUG detection function?
Does the DDC5V signal come from pin (18) of SC1503 to pin (56) of IC2601 (HDMI_SW)?

NO → Check the line between the pin(18) of SC1503 and the pin(56) of IC2601.

↓ YES

Does the HPD signal come from pin (55) of IC2601 to pin (19) of SC1503?

NO → Check the line between the pin (55) of IC2601 and the pin (19) of SC1503.

↓ YES

Is IC2601(HDMI-SW) accessed by I2C, with HDMI connected, to read the DDC-I2C SCL/SDA data?

NO → Check the DDC-I2C line and its peripheral circuits.
①SC1501 pin(15)(SCL), pin(16)(SDA)
②IC2601 pin(54), pin(53)

↓ YES

Are there the TMDS signal at input pins of IC3301(CPU)?

NO → Check the TMDS line (between SC1503 and IC2601) and its peripheral circuits.
[IC2601 TMDS input pins]
pin(8/9)(CLK-/+), pin(10/11)(D0-/+), pin(12/13)(D1-/+), pin(14/15)(D2-/+).

Check the TMDS line (between IC2601 and IC3301) and its peripheral circuits.
[IC3301 TMDS input pins]
pin(AH35/AH34)(CLK-/+), pin(AG35/AG34)(D0-/+), pin(AG37/AG36)(D1-/+), pin(AF35/AF34)(D2-/+).

Check the I2C line (between IC2601 and IC3301).
①IC2601:pin(71)(SCL), pin(70)(SDA)
②IC3301:pin(AN12), pin(AP12)

Check IC2601 and its peripheral circuits.

↓ YES

Is the T-CON PWB connected?
VBO_LOCKN pin(40) of SC3801 become Low if there is no problem in the connection.

NO → Check the T-CON PWB and harness.
Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

↓ YES

Are the V-By-One HS signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO → Check IC3301 and its peripheral circuits.
(IC3501/IC3502/IC3503/IC3504, etc.)

↓ YES

Check the panel module and harness.

**<HDMI input> No video (1)-4**

**HDMI: No external input video [INPUT-4]**

Is INPUT-4 selected on the input select menu screen?

NO → Select INPUT-4 on the input select menu screen for the right input signal.

YES

Does the HOT PLUG detection function?
Does the DDC5V signal come from pin (18) of SC1504 to pin (51) of IC2601 (HDMI_SW)?

NO → Check the line between the pin(18) of SC1504 and the pin(51) of IC2601.

YES

Does the HPD signal come from pin (50) of IC2601 to pin (19) of SC1504?

NO → Check the line between the pin (50) of IC2601 and the pin (19) of SC1504.

YES

Is IC2601(HDMI-SW) accessed by I2C, with HDMI connected, to read the DDC-I2C SCL/SDA data?

NO → Check the DDC-I2C line and its peripheral circuits.
①SC1501 pin(15)(SCL), pin(16)(SDA)
②IC2601 pin(49), pin(48)

YES

Are there the TMDS signal at input pins of IC3301(CPU)?

NO → Check the TMDS line (between SC1504 and IC2601) and its peripheral circuits.
[IC2601 TMDS input pins]
pin(99/100)(CLK-/+), pin(1/2)(D0-/+), pin(3/4)(D1-/+), pin(5/6)(D2-/+).

Check the TMDS line (between IC2601 and IC3301) and its peripheral circuits.
[IC3301 TMDS input pins]
pin(AH35/AH34)(CLK-/+), pin(AG35/AG34)(D0-/+), pin(AG37/AG36)(D1-/+), pin(AF35/AF34)(D2-/+).

Check the I2C line (between IC2601 and IC3301).
①IC2601:pin(71)(SCL), pin(70)(SDA)
②IC3301:pin(AN12), pin(AP12)

Check IC2601 and its peripheral circuits.

YES

Is the T-CON PWB connected?
VBO_LOCKN (40pin) of SC3801 become Low if there is no problem in the connection.

NO → Check the T-CON PWB and harness.
Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

YES

Are the V-By-One signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO → Check IC3303 and its peripheral circuits.
(IC3501/IC3502/IC3503/IC3504, etc.)

YES

Check the panel module and harness.

**No video (2)**

**COMPONENT: No external input video [INPUT-5]**

Is INPUT-5 selected on the input select menu screen?
Is the INPUT-SELECT for the input signal?

NO

Select INPUT-5 on the input select menu screen for the right input signal.

Is "COMPONENT" selected on the input select menu screen?

NO → Select "COMPONENT" on the input menu screen for the right input signal.

YES

YES

Are there the COMPONENT video signal inputs at pins(AU26/AP25)(Y)/(AR26)(Pb) and (AP26)(Pr) of IC3301(CPU)?

NO

Check the line between the input terminals of J513 and IC3301.

①J513 pin(1)(Y) pin(2)(Pb) pin(3)(Pr)

②IC3301 pin(AU26/AP25) pin(AR26) pin(AP26)

YES

Is the T-CON PWB connected?
VBO_HTPDN pin (40) of SC3801 become Low if there is no problem in the connection.

NO → Check the T-CON PWB and harness.
Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

YES

Are the V-By-One HS signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO → Check IC3301 and its peripheral circuits.
(IC3501/IC3502/IC3503/IC3504, etc.)

YES

Check the panel module and harness.

**No video (3)**

COMPSITE: No external input video [INPUT-5]

Is INPUT-5 selected on the input select menu screen?

NO

Select INPUT-5 on the input select menu screen for the right input signal.

NO

Is "VIDEO" selected on the input select menu screen?

YES

Select "VIDEO" on the input menu screen for the right input signal.

YES

NO

Is there the COMPOSITE signal input at pin (AT30) of IC3301 (CPU)?

NO

Check the line between pin (2) of J509 and pin (AT30) of IC3301 (CPU).

①J509:pin(2)

②IC3301:pin(AT30)

YES

COMPSITE: No external input video [INPUT-6]

Is INPUT-6 selected on the input select menu screen?

NO

Select INPUT-6 on the input select menu screen for the right input signal.

YES

Is there the COMPOSITE signal input at pin (AR31) of IC3301 (CPU)?

NO

Check the line between pin (2) of J514 and pin (AR31) of 3301 (CPU)?

①J514:pin(2)

②IC3301:pin(AR31)

YES

Is the T-CON PWB connected?
VBO_LOCKN pin(40) of SC3801 become Low if there is no problem in the connection.

NO → Check the T-CON PWB and harness. Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

YES

Are the V-By-One HS signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO → Check IC3301 and its peripheral circuits. (IC3501/IC3502/IC3503/IC3504, etc.)

YES

Check the panel module and harness.

**No video (4)**

PC: No external input video [INPUT7]

Is the INPUT-7 selected on the input select menu screen?

NO

Select INPUT-7 on the input select menu screen for the right input signal.

Is IC2601 (HDMI-SW) accessed by I2C, with PC connected, to read the VGA_SCL/SDA data?

Check the DDC-12C line and its peripheral circuits. (IC2601 and its peripherals).

YES

Are there the video signal inputs at pins (AR24/AT24) (G), (AU24) (B) and (AR25) (R) of IC3301 (CPU)?
Are there the VSYNC/HSYNC signal inputs at pins (AM25) and (AN25) of IC3301?

NO

Check the line between SC504 and IC3301, and their peripheral circuits.

YES

Is the T-CON PWB connected?
VBO_LOCKN pin (40) of SC3801 become Low if there is no problem in the connection.

NO →

Check the T-CON PWB and harness.
Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

YES

Are the V-By-One HS signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO →

Check IC3301 and its peripheral circuits.
(IC3501/IC3502/IC3503/IC3504, etc.)

YES

Check the panel module and harness.

**No video (5)**

**No video at UHF/VHF broadcast signal reception**

**No video at digital broadcast signal reception**

Is the specified TV signal selected on the input select menu screen?

Are there the IF signal at input pins(AT32/AU32)(TUN_IFN/P) of IC3301(CPU)?

NO

Check the IF signal line between IC3301 and TU1104, and their peripheral circuits.

Check the Tuner I2C lines.

①TU1104:pin(5)(TU_SCLK, pin(4)(TU_SDATA)

②IC3301:pin(V35), pin(V34)

YES

Are there the IF signal at input pins(AT32/AU32)(TUN_IFN/P) of IC3301(CPU)?

Is there IF-AGC signal at input pin(12) of TU1104?

NO

Check the IF signal line between IC3301 and TU1104, and their peripheral circuits.

Check the IF-AGC line between pin(U35) of IC3301 and pin(12) of TU1104.

Check the Tuner I2C lines.

①TU1104:pin(5)(TU_SCLK, pin(4)(TU_SDATA)

②IC3301:pin(V35), pin(V34)

YES

Is the T-CON PWB connected?
VBO_LOCKN (40pin) of SC3801 become Low if there is no problem in the connection.

NO →

Check the T-CON PWB and harness.
Check IC3301 and SC3801 and their peripheral circuits in Main PWB.

YES

Are the V-By-One HS signal input to the pin of SC3801?
VBO_CN_TXA+/- (36/37pin), VBO_CN_TXB+/- (32/33pin),
VBO_CN_TXC+/- (28/29pin), VBO_CN_TXD+/- (24/25pin).

NO →

Check IC3301 and its peripheral circuits.
(IC3501/IC3502/IC3503/IC3504, etc.)

YES

Check the panel module and harness.

No video (6)

↓

MHL:No external input video [INPUT-4] (using MHL Cable with Mobile Phone)

↓

| | | |
|---|---|---|
| Is INPUT-4 selected on the input select menu screen? | NO → | Select INPUT-4 on the input select menu screen for the right input signal. |

↓ YES

| | | |
|---|---|---|
| Does the MHL Cable detection function? | → | Check the MHL Cable. |
| Does the CD_SENSE signal (High level) come from pin(2) of SC1504 to pin(69) of IC2601(HDMI-SW)? | NO → | Check the line between the pin(2) of SC1504 and the pin(69) of IC2601. |

↓ YES

| | | |
|---|---|---|
| Does the CBUS signal come from pin(50) of IC2601 to pin(19) of SC1504? | NO → | Check the CBUS line between the pin(19) of SC1504 and the pin(50) of IC2601, and their peripheral circuits.(Q1507, etc.) |

↓ YES

| | | |
|---|---|---|
| Does the VBUS signal (5V valtage power signal) output from pin(6) of IC1507 to pin(18) of SC1504? | NO → | Check the VBUS line between the pin(19) of SC1504 and the pin(6) of IC1507, and their peripheral circuits.(IC1508, IC1509, etc) |

↓ YES

| | | |
|---|---|---|
| Are there the TMDS signal at input pin(1/2)(D0-/+) of IC2601(HDMI-SW)? | NO → | Check the TMDS line (between SC1504 and IC2601) and its peripheral circuits.(IC1504, etc.) |

↓ YES

| | | |
|---|---|---|
| Are there the TMDS signal at input pins of IC3301(CPU)? | NO → | Check the TMDS line (between IC2601 and IC3301) and its peripheral circuits.<br>[IC3301 TMDS input pins]<br>pin(AH35/AH34)(CLK-/+),<br>pin(AG35/AG34)(D0-/+),<br>pin(AG37/AG36)(D1-/+),<br>pin(AF35/AF34)(D2-/+). |
| | | Check the I2C line (between IC2601 and IC3301).<br>①IC2601:pin(71)(SCL), pin(70)(SDA)<br>②IC3301:pin(AN12), pin(AP12) |
| | | Check IC2601 and its peripheral circuits. |

↓ YES

| | | |
|---|---|---|
| Is the T-CON PWB connected?<br>VBO_LOCKN pin(40) of SC3801 become Low if there is no problem in the connection. | NO → | Check the T-CON PWB and harness.<br>Check IC3301 and SC3801 and their peripheral circuits in Main PWB. |

↓ YES

| | | |
|---|---|---|
| Are the V-By-One HS signal input to the pin of SC3801?<br>VBO_CN_TXA+/-(36/37pin), VBO_CN_TXB+/-(32/33pin),<br>VBO_CN_TXC+/-(28/29pin), VBO_CN_TXD+/-(24/25pin). | NO → | Check IC3301 and its peripheral circuits.(IC3501/IC3502/ IC3503/IC3504, etc.) |

↓ YES

Check the panel module and harness.

**• Does not sound.**

**No audio (1)**

**INPUT-6 No audio.**

Is INPUT-6 selected on the input select menu screen?

NO → Refer to ": No external input video [INPUT-6]".

YES

Dose the audio signal come from pins (3) (L) and (4) (R) of input terminal (J514) to pins (AP34) (L) and (AU36) (R) of IC 3301 (CPU) ?

NO → Check the line between J514 and IC3301.

YES

**INPUT-5 No audio.**

Is INPUT-5 selected on the input select menu screen?

NO → Refer to ": No external input video [INPUT-5]".

YES

Dose the audio signal come from pins (3) (L) and (4) (R) of input terminal (J509) to pins (AP37) (L) and (AR36) (R) of IC 3301 (CPU) ?

NO → Check the line between J509 and IC3301.

YES

Does the digital audio signal come from pins(AR11/AP11/AN9)(CPU_AOBCK/AOLRCK/AOSDATA0) of IC3301(CPU) to pins(6/7/5)(SP_BCLK/SP_LRCLK/SP_DATA) of IC1703(Audio DSP)?

NO → Check the line between IC3301 and IC1703, and their paripheral circuits.

YES

- About the L/R Speakers.

Does the digital audio signal come from pins (30/21/26/27) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1902 (AMP for L/R)?

- About the Subwoofer speaker.

Does the digital audio signal come from pins (30/21/26/28) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1901 (AMP for SW)?

NO → Check IC1703 and its paripheral circuits.(X1701, etc.)

YES

- About the L/R Speakers.

Is the audio output from IC1902 as specified?

- About the Subwoofer Speaker.

Is the audio output from IC1901 as specified?

NO →

- About the L/R Speakers.

Check IC1902 and its peripheral circuits.

- About the Subwoofer Speaker.

Check IC1901 and its peripheral circuits.

YES

- About the L/R Speakers.

Check the connector (P1903) L/R speakers and their peripheral circuits.

- About the Subwoofer Speaker.

Check the connector (P1904), subwoofer speaker and their peripheral circuits.

**No audio (2)**

[PC analog audio input] INPUT-7 No audio.

Is INPUT-7 selected on the input select menu screen ?

NO

Refer to ": No external input video [INPUT-7]".

YES

Is the “Terminal Setting” - “Audio select” selected for “Video + Audio” on the menu screen?

NO

Set the HDMI audio output to "Video+Audio".

YES

**[HDMI analog audio input] INPUT-2 No audio.**

Is INPUT-2 selected on the input select menu screen?

NO

Refer to “: No external input video [INPUT-2]”.

YES

Is the “Terminal Setting” - “Audio select” selected for “Video + Analog” on the menu screen?

NO

Set the HDMI audio output to "HDMI+Analog".

YES

Does the digital audio signal come from pins(AR11/AP11/AN9)(CPU_AOBCK/AOLRCK/AOSDATA0) of IC3301(CPU) to pins(6/7/5)(SP_BCLK/SP_LRCLK/SP_DATA) of IC1703(Audio DSP)?

NO

Check the line between IC3301 and IC1703 and their peripheral circuits.

YES

- About the L/R Speakers.

Does the digital audio signal come from pins (30/21/26/27) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1902 (AMP for L/R)?

- About the Subwoofer speaker.

Does the digital audio signal come from pins (30/21/26/28) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1901 (AMP for SW)?

NO

Check IC1703 and its paripheral circuits.(X1701, etc.)

YES

- About the L/R Speakers.

Is the audio output from IC1902 as specified?

- About the Subwoofer Speaker.

Is the audio output from IC1901 as specified?

NO

- About the L/R Speakers.

Check IC1902 and its peripheral circuits.

- About the Subwoofer Speaker.

Check IC1901 and its peripheral circuits.

YES

- About the L/R Speakers.

Check the connector (P1903) L/R speakers and their peripheral circuits.

- About the Subwoofer Speaker.

Check the connector (P1904), subwoofer speaker and their peripheral circuits.

**No audio (3)**

**No audio at UHF/VHF broadcast signal reception.**

Is TV selected on the input select menu screen?

NO

Refer to “No video at UHF/VHF broadcast signal reception”.

YES

**No audio at digital broadcast signal reception.**

Is TV selected on the input select menu screen?

NO

Refer to “No video at digital broadcast signal reception”.

YES

Does the digital audio signal come from pins(AR11/AP11/AN9)(CPU_AOBCK/AOLRCK/AOSDATA0) of IC3301(CPU) to pins(6/7/5)(SP_BCLK/SP_LRCLK/SP_DATA) of IC1703(Audio DSP)?

NO

Check the line between IC3301 and IC1703, and their paripheral circuits.

YES

- About the L/R Speakers.

Does the digital audio signal come from pins (30/21/26/27) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1902 (AMP for L/R)?

- About the Subwoofer speaker.

Does the digital audio signal come from pins (30/21/26/28) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1901 (AMP for SW)?

NO

Check IC1703 and its paripheral circuits.(X1701, etc.)

YES

- About the L/R Speakers.

Is the audio output from IC1902 as specified?

- About the Subwoofer Speaker.

Is the audio output from IC1901 as specified?

NO

- About the L/R Speakers.

Check IC1902 and its peripheral circuits.

- About the Subwoofer Speaker.

Check IC1901 and its peripheral circuits.

YES

- About the L/R Speakers.

Check the connector (P1903) L/R speakers and their peripheral circuits.

- About the Subwoofer Speaker.

Check the connector (P1904), subwoofer speaker and their peripheral circuits.

**No audio (4)**

↓

**INPUT-1 No audio (HDMI connected)**
**INPUT-2 No audio (HDMI connected)**
**INPUT-3 No audio (HDMI connected)**
**INPUT-4 No audio (HDMI connected or MHL connected)**

↓

[INPUT-1 input]
Is INPUT-1 selected on the input select menu screen?

[INPUT-2 input]
Is INPUT-2 selected on the input select menu screen?

[INPUT-3 input]
Is INPUT-3 selected on the input select menu screen?

[INPUT-4 input]
Is INPUT-4 selected on the input select menu screen?

↓ NO

Refer to ": No external input video [INPUT-1/2/3/4]".

↓ YES

[INPUT-1 input]
If no video appears, refer to "No external input video (HDMI) [INPUT-1]".

[INPUT-2 input]
If no video appears, refer to "No external input video (HDMI) [INPUT-2]".

[INPUT-3 input]
If no video appears, refer to "No external input video (HDMI) [INPUT-3]".

[INPUT-4 input]
If no video appears, refer to "No external input video (HDMI) [INPUT-4]".

↓

Does the digital audio signal come from pins(AR11/AP11/AN9)(CPU_AOBCK/AOLRCK/AOSDATA0) of IC3301(CPU) to pins(6/7/5)(SP_BCLK/SP_LRCLK/SP_DATA) of IC1703(Audio DSP)?

↓ NO

Check the line between IC3301 and IC1703 and their peripheral circuits.

↓ YES

- About the L/R Speakers.

Does the digital audio signal come from pins (30/21/26/27) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1902 (AMP for L/R)?

- About the Subwoofer speaker.

Does the digital audio signal come from pins (30/21/26/28) of IC1703 (Audio DSP) to pin (5/7/8/6) of IC1901 (AMP for SW)?

↓ NO

Check IC1703 and its paripheral circuits.(X1701, etc.)

↓ YES

- About the L/R Speakers.

Is the audio output from IC1902 as specified?

- About the Subwoofer Speaker.

Is the audio output from IC1901 as specified?

↓ NO

- About the L/R Speakers.

Check IC1902 and its peripheral circuits.

- About the Subwoofer Speaker.

Check IC1901 and its peripheral circuits.

↓ YES

- About the L/R Speakers.

Check the connector (P1903) L/R speakers and their peripheral circuits.

- About the Subwoofer Speaker.

Check the connector (P1904), subwoofer speaker and their peripheral circuits.

**No audio signal at Digital Audio Output terminal (Analog sound heard)**

**No INPUT-1/2/3/4 (HDMI) audio.**

If no video appears, refer to “No external input video (HDMI) [INPUT-1/2/3/4]”.

**No audio at digital broadcast signal reception.**

If no video appears, refer to “No video at digital broadcast signal reception”.

Is there the SPDIF signal output (CPU_ASPDIF) at pin (AR16) of IC3301 (CPU)?

NO

Check the IC3301 and its peripheral circuits.

YES

Is there the SPDIF signal (OPT_OUT) input at pin (2) of IC503 (SPDIF BUFFER & SPDIF-MUTE)?

NO

Check the line between IC3301 and IC503.

YES

Is there the MUTE signal input at pin (1) of IC503? (usual: High, Mute: Low)

NO

Check the AUDIO_MUTE and their peripheral circuits (Q505, etc.).

YES

Is there the SPDIF signal input at pin (1) of D527 (OPTICAL OUTPUT)?

YES

Check the speakers and the optical cable.

NO

Check D527 and its peripheral circuits.

No optical output under the following conditions as per HDMI requirements.

* Audio contents protected.
* Audio frequency beyond 48kHz.
* Audio bit length beyond 16bits.

**No monitor audio output**

Are there the audio signal outputs at pins (AN34) (HP_MONITOR_L) and (AN3532) (HP_MONITOR_R) of IC3301 (CPU)?

NO → Check IC3301 (CPU) and its peripheral circuits.

YES

Does the audio signal come from pins (2) (MONI_HP_L) and (11) (MONI_HP_R) of IC1702 (Line-out Amplifier) to pins (3) (L) and (2) (R) of J504?

NO → Check the line between IC1702 and J504 and their peripheral circuits.
Check the LINE_MUTE line and its peripheral circuits(Q506/Q510, etc).

YES

Check the connector (J504) and their peripheral circuits, and speakers and the Cable.

**No connect network**

Does the signal come to 1pin of LAN-JACK J9401?
(see fig-1, fig-2)

NO → Check the interface device and peripheral circuits.
(power-LED of hub, LINK-LED of hub)

YES

Does the signal come to AT18 pin of IC3301?
(see fig-2)

NO → Check the line between J9401 and IC3301.
Check the LAN-JACK J9401.

YES

Check IC3301 and its peripheral circuits.

fig-1 LAN-jack J9501

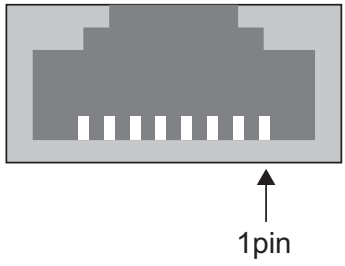
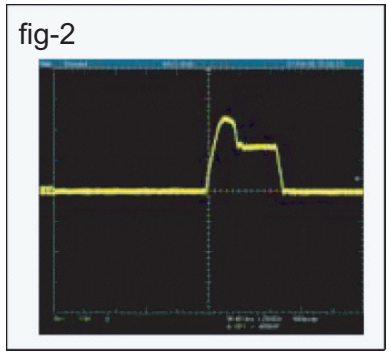



fig-2



# CHAPTER 7. MAJOR IC INFORMATIONS

## [1] MAJOR IC INFORMATIONS

### 1. MAJOR IC INFORMATIONS

#### 1.1. IC2601 (VHiSii9387A-1Q)

This IC is 5 input and 1 output HDMI port processor.

The TMDS cores run at 2.25Gbps. (Supports video resolutions up to 1080p, 60Hz, 12bit.)

The adaptive equalizer provides long cable support.

This IC has been pre-programmed with HDCP keys.

EDID and DDC support for 5 HDMI/DVI ports and 1 VGA port. (This IC includes 512-byte NVRAM and 256-byte SRAM for 5 HDMI ports and 128-byteSRAM for VGA port.)

This IC supports the mandatory and several optional 3D formats described in the HDMI 1.4 Specification.

"Audio Return Channel" and "HDMI Ethernet Channel" support for one receiver port.

"MHL" support for resolutions up to 1080i@60Hz can be assigned to any one input port.

When changing this IC, please write EDID (how to write EDID is shown in Chapter 5 and section 10.1).

#### 1.2. IC2004 (RH-iXD241WJNQQ)

The monitor microprocessor is intended to communicate with the main microprocessor and to operate the system.

It also controls power of the entire system.

#### 1.3. IC1901, IC1902 (VHiYDA164EZ-1Y)

The Class-D type digital audio power amplifier YDA164EZ gives maximum continuous output of 10 W/ch or woofer output 15W.

#### 1.4. IC3301 (RH-iXD414WJN3Q)

This LSI is FULL HIGH-DEFINITION 1080P DIGITAL TV SYSTEM-ON-A-CHIP.

It combines a transport de-multiplexer, a high definition video decoder, an AC3 audio decoder, a four-link LVDS transmitter, a V-by-One transmitter,and an NTSC/PAL/SECAM TV decoder with a 3D comb filter (NTSC/PAL).

It supports Full-HD MPEG1/2/4/H.264/DiviX/VC1/RM/AVS/VP6/VP8 video decoder standards, and JPEG.

Audio support includes a BTSC and a Dolby AC3/MPEG-2 Layer 1, 2, audio decoder.

Two SPDIF output and a pair of analog outputs (L-R) are provided.

The LSI incorporates a complete ARM Cortex-A9 dual core based microprocessor subsystem including caches with bridging to memory and a local bus, where external peripherals can be attached.

Integrated peripherals include four USB 2.0, three UARTs, counter/timers and GPIO controllers.

It supports ATSC/DVB-T/DVB-C demodulators.

#### 1.5. IC3501, IC3502 (RH-iXD555WJQZQ)

These are 2G-bit (128M x 16bit) DDR3-1600 synchronous DRAM.

#### 1.6. IC3503, IC3504 (RH-iXD406WJQZQ)

These are 1G-bit (64M x 16bit) DDR3-1600 synchronous DRAM.

#### 1.7. IC3103 (RH-iXD389WJQZQ)

The 2G-bit NAND flash memory device stores the main CPU program.

#### 1.8. IC3104 (VHiRV2464Ai-1Y)

This is 64k-bit EEPROM device including the user setting.

#### 1.9. IC2007 (VHiRV2402Ai-1Y)

This is 2k-bit EEPROM device stores the nomitor microprocessor setting.

#### 1.10. IC506 (VHiM3221EiP-1Y)

This IC is a high speed, single-channel RS-232 transceiver interface device that operates from a single 3.3V power supply.

The device provides the electrical interface between an asynchronous communication controller and the serial-port connector.

This device operate at data signaling rates up to 460kbit/s.

All RS-232 (Tout and Rin) and CMOS (Tin and Rout) inputs and outputs are protected against electrostatic discharge (up to +/- 15kV ESD protection).

#### 1.11. IC1702 (VHiAK4201EU-1Y)

This IC is audio amplifier for line-out/head-phone.

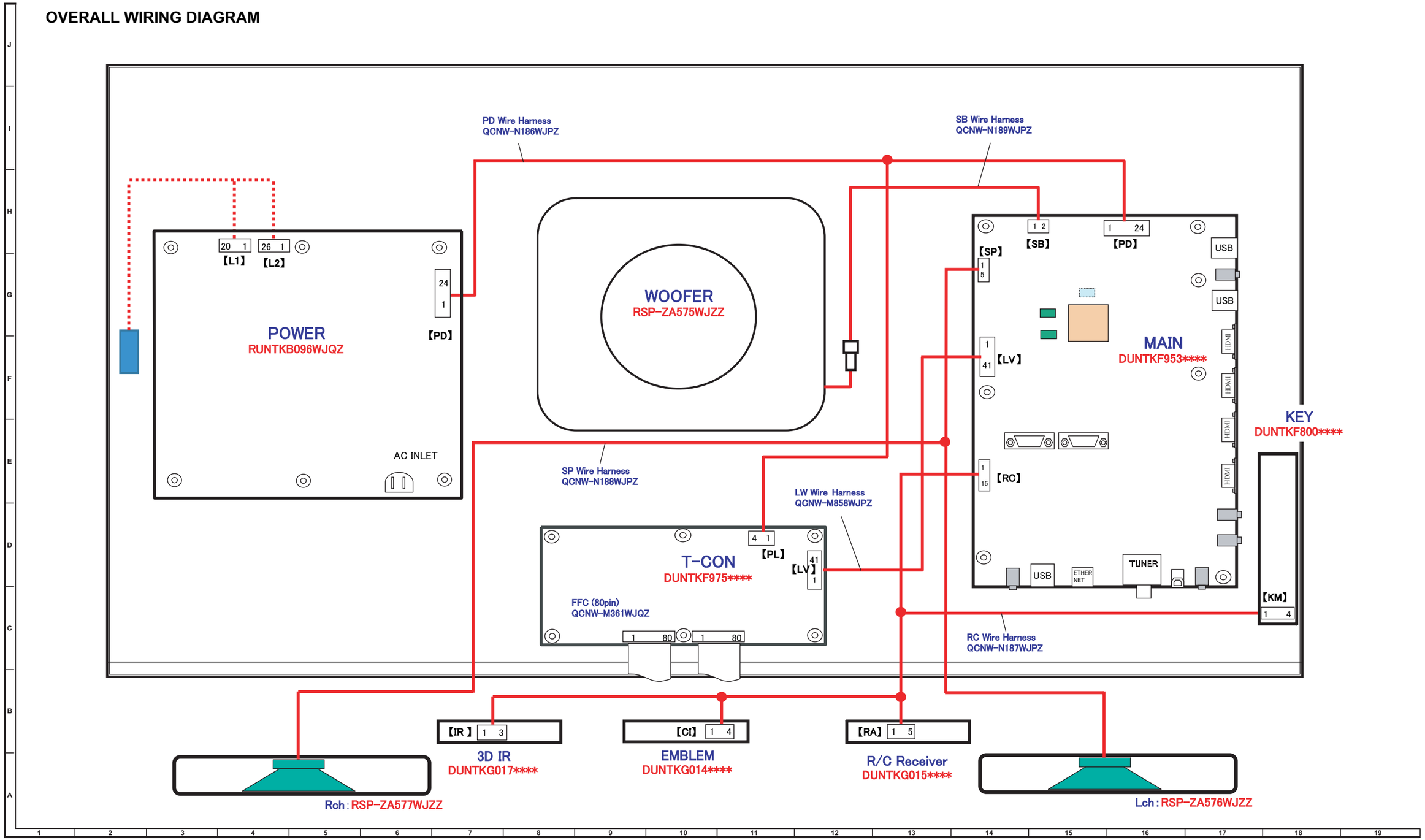
### 1.12. IC1703 (VHiYSS952QZ-1Y)

Audio DSP (YSS952QZ) has digital audio adjustment function (for example, PEQ, bass/treble, balance, bass enhancer, etc.) and adjusts TVs audio quality.

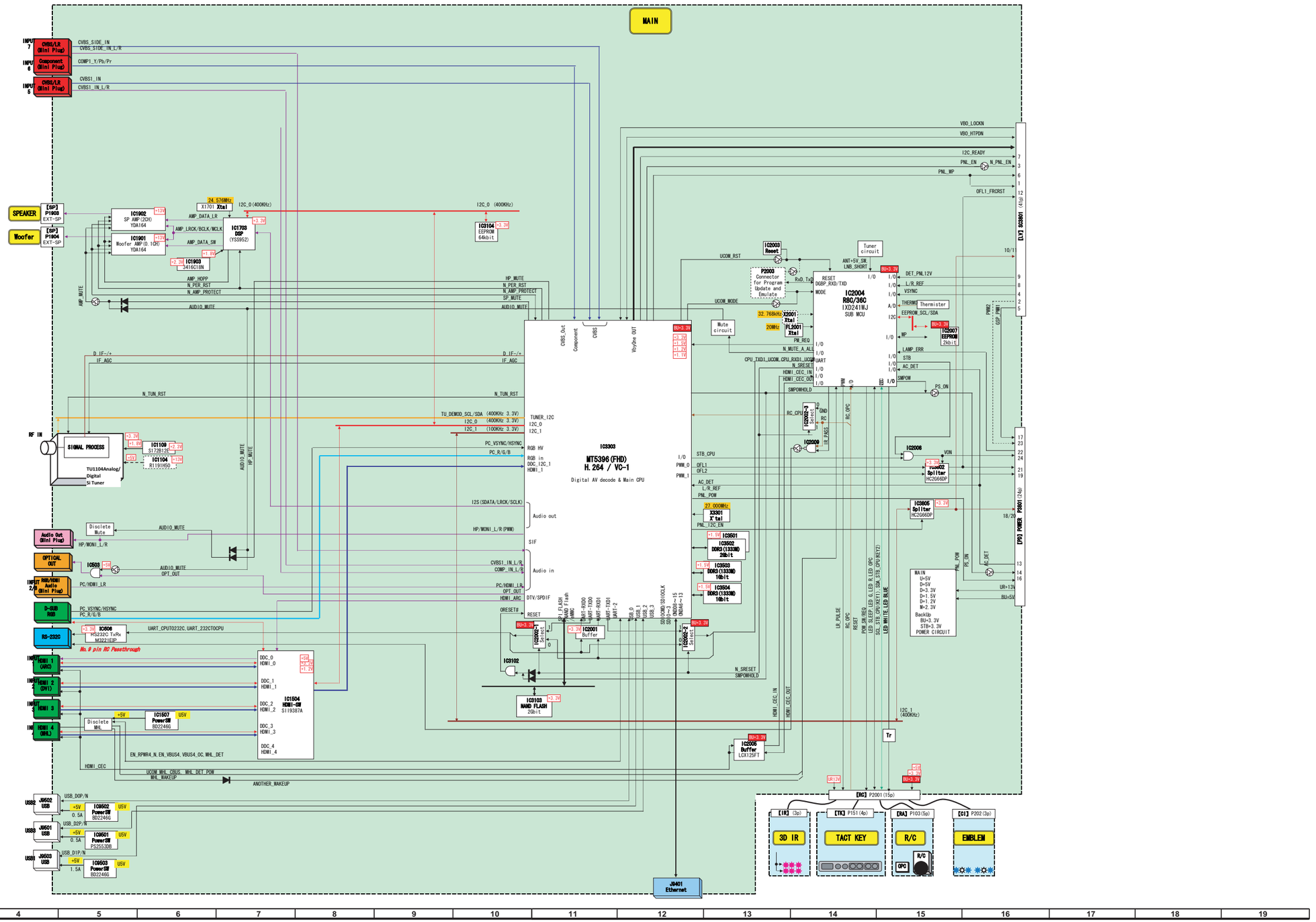
# CHAPTER 8. OVERALL WIRING/SYSTEM BLOCK DIAGRAM

## [1] OVERALL WIRING DIAGRAM

### OVERALL WIRING DIAGRAM

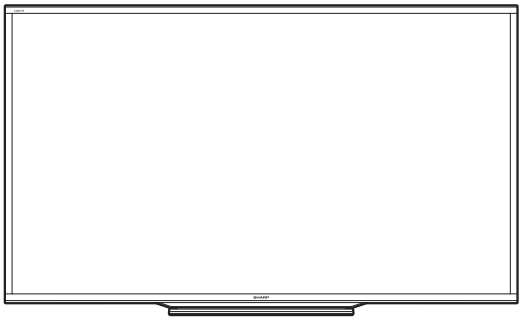


## SYSTEM BLOCK DIAGRAM



# SHARP PARTS GUIDE

No. SY2A4LC90LE74



## LCD COLOR TELEVISION

## MODEL LC-90LE740X

CONTENTS


[1] PRINTED WIRING BOARD ASSEMBLIES

[2] LCD PANEL MODULE UNIT

[3] CABINET AND MECHANICAL PARTS

[4] SUPPLIED ACCESSORIES/ PACKING PARTS (NOT REPLACEMENT ITEM)

[5] SERVICE JIG (USE FOR SERVICING)

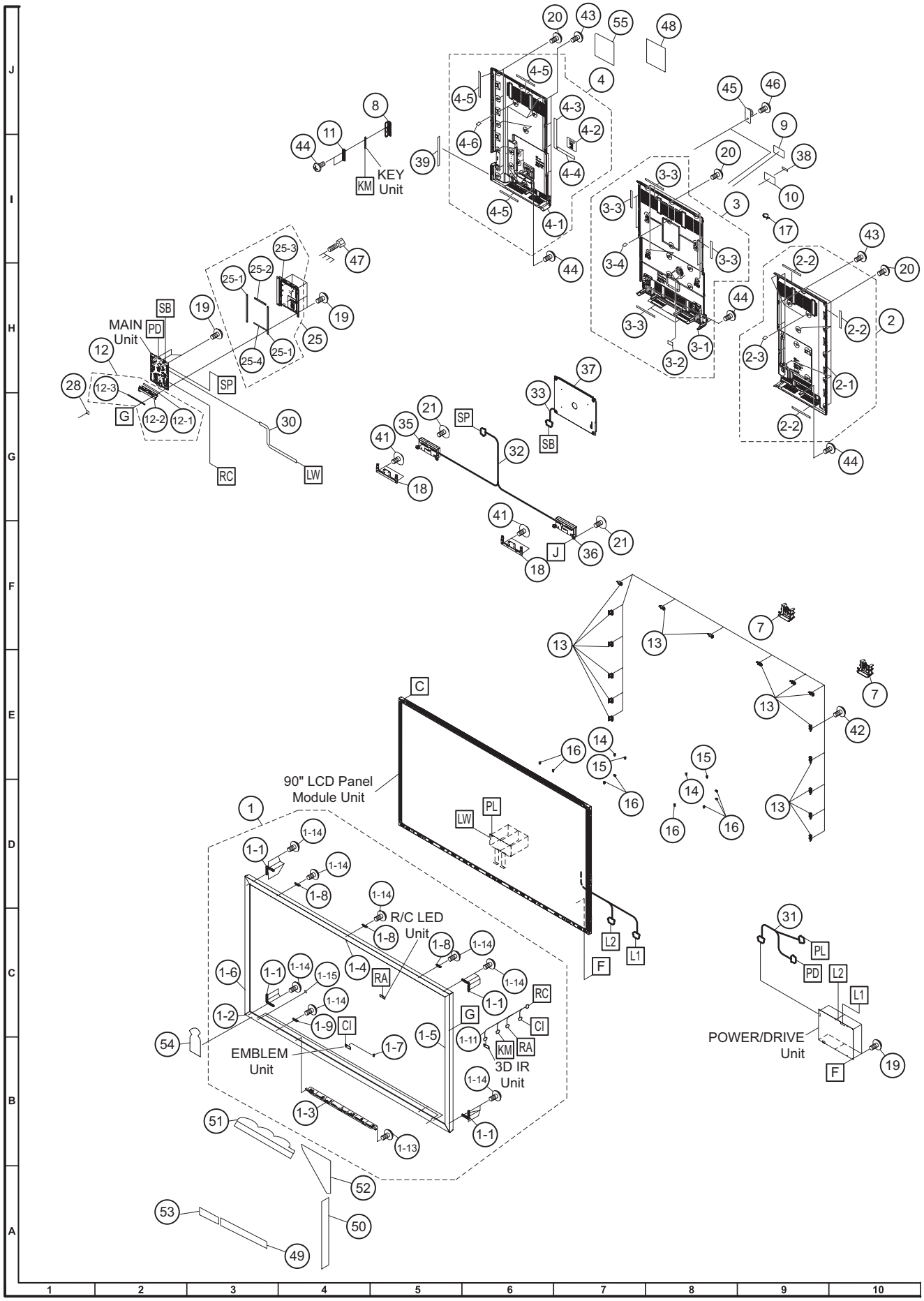

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

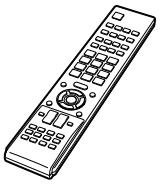
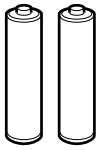
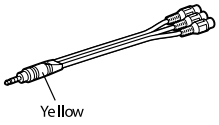
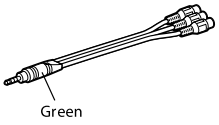
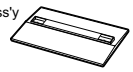
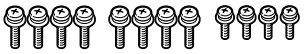
| | NO. | PARTS CODE | PRICE RANK | NEW MARK | PART DELIVERY | DESCRIPTION |
|---|---|---|---|---|---|---|
| | **[1] PRINTED WIRING BOARD ASSEMBLIES** | | | | | |
| | N | DKEYMF953FMJ6 | CB | N | V | MAIN Unit |
| | N | DUNTKF800FMF8 | AY | | V | KEY Unit |
| | N | DUNTKG017FMF7 | BB | | V | 3D IR Unit |
| | N | DUNTKG015FMF7 | AV | N | V | R/C LED Unit |
| | N | DUNTKG014FMF7 | AV | N | V | EMBLEM Unit |
| ⚠ | N | RUNTKB096WJQZ | CD | N | V | POWER/DRIVE Unit |
| | N | DUNTKF975FM18 | BL | N | X | LCD CONTROL Unit |
| | **[2] LCD PANEL MODULE UNIT** | | | | | |
| | N | B3KUV740X | ** | N | V | 90" LCD PANEL MODULE Unit (R1LK900D3GW10V) |

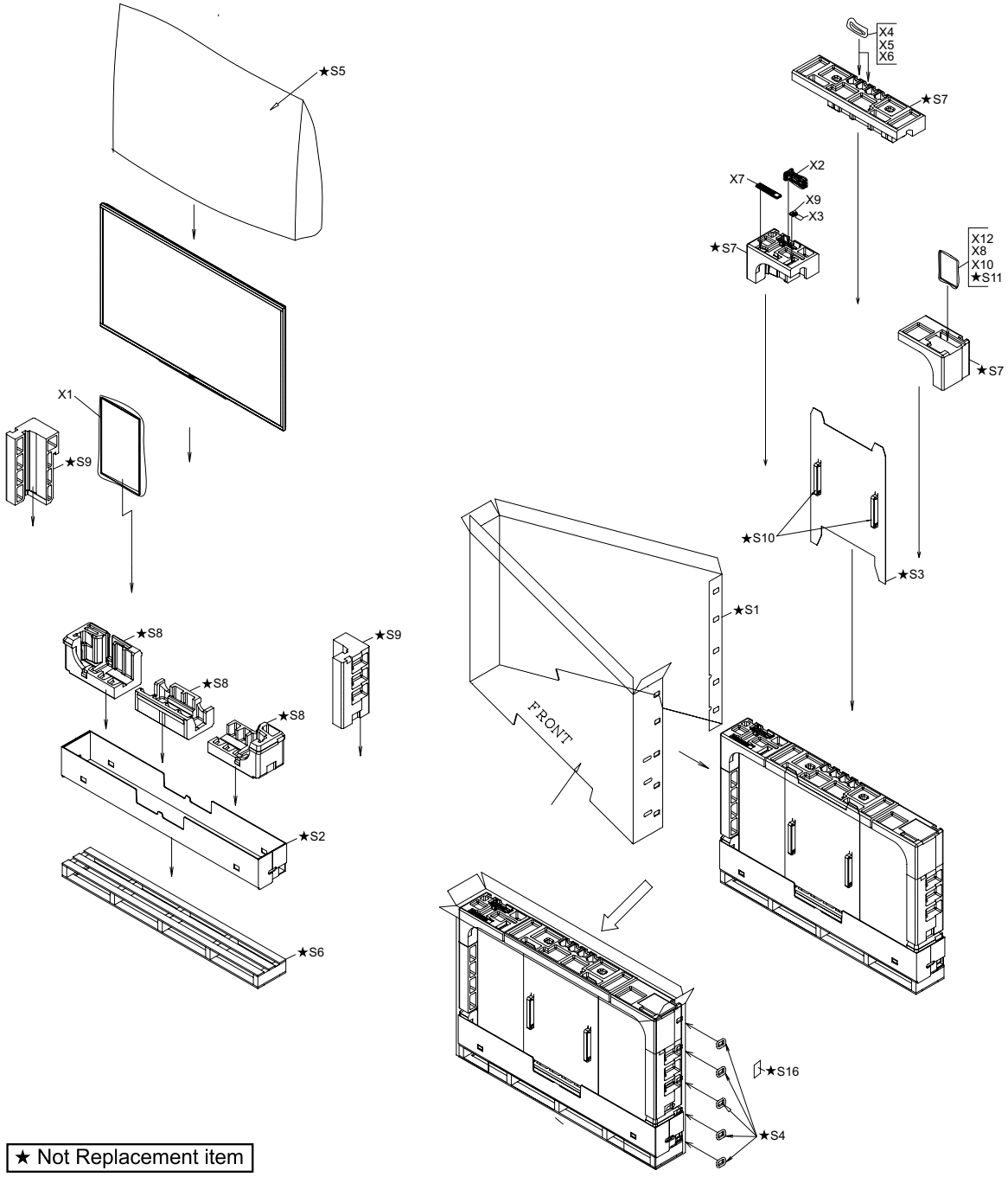
# [3] CABINET AND MECHANICAL PARTS



| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART DELIVERY | DESCRIPTION |
|---|---|---|---|---|---|
| **[3] CABINET AND MECHANICAL PARTS** | | | | | |
| 1 | Not Available | – | N | – | Decoration Frame Ass'y |
| 1-1 | CANGKD590WJ31 | AX | N | V | Corner Angle Ass'y, x4 |
| 1-2 | CDECEA044WJ31 | CH | N | V | Decoration Frame (Low) Ass'y |
| 1-3 | CGRL-A013WJ32 | CA | N | V | Under R Grill Ass'y |
| 1-4 | HDECEA043WJ3A | CF | N | V | Decoration Frame (Upper) |
| 1-5 | HDECEA045WJ3A | BY | N | V | Decoration Frame ( R ) |
| 1-6 | HDECEA046WJ3A | BX | N | V | Decoration Frame ( L ) |
| 1-7 | LHLDWA289WJKZ | AC | | J | Wire Holder, x2 |
| 1-8 | LHLDZB918WJ3Z | AT | N | V | Holder, x3 |
| 1-9 | LHLDZB919WJ3Z | AR | N | V | Holder, x4 |
| 1-11 | QCNW-N187WJPZ | AT | N | V | Connecting Cord (RC) |
| 1-13 | XBPS830P06WS0 | AA | | J | Screw, x6 |
| 1-14 | XBPS830P08000 | AA | | J | Screw, x23 |
| 1-15 | PSPAGB040WJKZ | AD | N | V | Spacer, x2 |
| 2 | CCABBC108WJ31 | CV | N | V | Rear Cabinet ( R ) Ass'y |
| 2-1 | Not Available | – | N | – | Rear Cabinet ( R ) |
| 2-2 | Not Available | – | | – | Himeron, x3 |
| 2-3 | Not Available | – | | – | Himeron, x3 |
| 3 | CCABBC109WJ31 | CW | N | V | Rear Cabinet ( C ) Ass'y |
| 3-1 | Not Available | – | N | – | Rear Cabinet ( C ) |
| 3-2 | PSPAGB040WJKZ | AD | N | V | Himeron, x4 |
| 3-3 | Not Available | – | | – | Himeron, x8 |
| 3-4 | PSPAHC566WJZZ | | | V | Spacer |
| 4 | CCABBC110WJ32 | CW | N | V | Rear Cabinet (L) Ass'y |
| 4-1 | Not Available | – | N | – | Rear Cabinet (L) |
| 4-2 | Not Available | – | N | – | Term Ind Back |
| 4-3 | Not Available | – | N | – | Term Ind Side |
| 4-4 | Not Available | – | N | – | Term Ind Bottom |
| 4-5 | PSPAHC497WJZZ | | | V | Himeron, x3 |
| 4-6 | PSPAHC566WJZZ | | | V | Himeron, x6 |
| 7 | GCOVAE164WJ3A | AX | N | V | Bottom Cover, x2 |
| 8 | GCOVAE428WJ3A | BG | N | V | Key Cover |
| 9 | HiNDPD955WJ4A | AD | N | J | REG Label (for Asia/Middle East) |
| 10 | HiNDPE814WJSA | AD | N | V | Model Label (for Australia, New Zealand and Oceania) |
| 10 | HiNDPE815WJSA | AD | N | V | Model Label (for Asia/Middle East) |
| 10 | Not Available | – | N | – | Model Label (for Thailand) |
| 11 | JBTN-A937WJ3A | AZ | N | V | Key Button |
| 12 | CANGKD609WJ41 | AN | | J | Terminal Angle (Bottom) |
| 12-1 | Not Available | – | | – | TERM Decoration Bottom |
| 12-2 | Not Available | – | N | – | TERM Angle Bottom |
| 12-3 | PMLT-A687WJQZ | AM | | V | Gasket |
| 13 | CANGKD591WJ31 | AK | N | V | Module Fix Angle Ass'y, x16 |
| 14 | LHLDWA124WJKZ | AC | | J | Wire Holder, x2 |
| 15 | LHLDWA151WJKZ | AB | | J | Wire Holder, x2 |
| 16 | LHLDWA175WJUZ | AC | | J | Wire Holder, x8 |
| 17 | LHLDWA318WJKZ | AD | | J | Cable Clamp |
| 18 | LHLDZB922WJ3Z | BC | N | V | Speaker Holder, x2 |
| 19 | LX-BZA207WJF7 | AA | | J | Screw, x13 |
| 20 | LX-BZA474WJF8 | AD | | J | Screw, x28 |
| 21 | LX-EZA069WJF7 | AB | | J | Screw, x2 |
| 25 | CSLDMB807WJ41 | AX | | J | Shield (MAIN) |
| 25-1 | PMLT-A678WJQZ | AL | | V | Gasket (SIDE), x2 |
| 25-2 | PMLT-A679WJQZ | AG | | V | Gasket (TOP) |
| 25-3 | Not Available | – | N | – | Main Shield |
| 25-4 | PSPAZC740WJZZ | AF | | J | GASKET 9x146 |
| 28 | PSPAZC871WJKZ | AM | | J | Cooler (MAIN) |
| 30 | QCNW-M858WJPZ | BB | | V | Connecting Cord (LV) |
| 31 | QCNW-N186WJPZ | AZ | N | V | Connecting Cord (PD) |
| 32 | QCNW-N188WJPZ | AQ | N | V | Connecting Cord (SP) |
| 33 | QCNW-N189WJPZ | AK | N | V | Connecting Cord (SB) |
| 35 | RSP-ZA576WJZZ | AT | | J | Speaker (L) |
| 36 | RSP-ZA577WJZZ | AT | | J | Speaker ( R ) |
| 37 | RSP-ZA575WJZZ | BB | | J | Speaker (Woofer) |
| 38 | Not Available | – | N | – | Back Serial Label |
| 39 | Not Available | – | N | – | Side Serial Label |
| 41 | XBPS830P06WS0 | AA | | J | Screw, x4 |
| 42 | XBPS830P08000 | AA | | J | Screw, x16 |
| 43 | XEBS830P08000 | AA | | J | Screw, x10 |
| 44 | XEBS830P12000 | AA | | J | Screw, x10 |
| 45 | LANGKD877WJ4A | AM | | V | PREVENTION ANGLE, x2 (for Australia, New Zealand) |
| 46 | XBPS880P16JS0 | AE | | V | Screw, x2 (for Australia, New Zealand) |
| 47 | NSFTZA284WJFW | AC | | J | HEX Nut, x4 |
| 48 | TCAUHA627WJZZ | AC | | J | Caution Label |
| 49 | TLABZD272WJZZ | AE | | V | Tradmark Label |
| 50 | TLABZD537WJZZ | AU | N | V | Pop Label SIDE |
| 51 | TLABZD538WJZZ | AS | N | V | Pop Label TOP |
| 52 | TLABZD539WJZZ | AW | N | V | Pop Label CORNE |
| 53 | TLABZD326WJZZ | AC | | J | Freeview Label (for New ZealanÇN) |
| 54 | TLABZD540WJZZ | AF | N | V | Rating Label |
| 55 | HiNDPE737WJZZ | AE | | J | Caution Stasnd Label (for Australia, New Zealand) |

# [4] SUPPLIED ACCESSORIES/PACKING PARTS (NOT REPLACEMENT ITEM)

| X7 Remote control unit | X9 "AAA" size battery | X5 AV cable | X6 Component cable |
|---|---|---|---|
|  |  |  |  |
| **Stand unit** | | **X4 AC cord** | **Other accessories** |
| X1 Stand Base Ass'y  X2 Support Ass'y X3 Screw  | | | • X8 Operation manual<br>• X10 Antenna Adaptor<br>• X12 Skype Information sheet |




★ Not Replacement item

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART DELIVERY | DESCRIPTION |
|---|---|---|---|---|---|
| **[4] SUPPLIED ACCESSORIES/PACKING PARTS (NOT REPLACEMENT ITEM)** | | | | | |
| X1 | CDAi-A806WJ34 | BN | | J | Stand Base Ass'y |
| X2 | CANGKD276WJ07 | AS | | J | Support Ass'y, x2 |
| X3 | CSAKHA050WE05 | AL | | J | Stand Screw Ass'y |
| X4 | QACCZA208WJPZ | | N | V | AC Cord (for Thailand) |
| X4 | QACCBA117WJPZ | AU | N | V | AC Cord (for Asia, Singapore/Middle East) |
| X4 | QACCKA066WJPZ | AS | N | V | AC Cord (for Asia, Singapore/Middle East) |
| X4 | QACCLA060WJPZ | AW | N | V | AC Cord (for Australia, New Zealand and Oceania) |
| X4 | QACCZA209WJPZ2 | AP | N | V | AC Cord (for Asia, Singapore/Middle East) |
| X5 | QCNWGA171WJPZ | AQ | | J | AV cable |
| X6 | QCNWGA174WJPZ | AQ | | J | Component cable |
| X7 | RRMCGB039WJSA | AY | | V | Remote control unit |
| X8 | TiNS-F742WJZZ | AX | N | V | Operation Manual (for Australia, New Zealand and Oceania) |
| X8 | TiNS-F743WJZZ | BH | N | V | Operation Manual (for Asia/Middle East) |
| X8 | TiNS-F744WJZZ | BH | N | V | Operation Manual (for Middle East/Thailand) |
| X9 | Not Available | – | | – | "AAA" size battery, x2 (for Australia, New Zealand, Asia/Middle East) |
| X10 | QCNCWA969WJZZ | AF | | J | Antenna Adaptor (for Philippines) |
| X12 | TiNS-F641WJZZ | AB | N | J | Skype Information Sheet (for Australia, New Zealand and Oceania) |
| S1 | SPAKCH088WJZZ | BV | N | V | Packing Case (Main) (NOT REPLACEMENT ITEM) |
| S2 | SPAKCH089WJZZ | BE | N | V | Packing Case (Bottom) (NOT REPLACEMENT ITEM) |
| S3 | SPAKFC248WJZZ | AR | N | V | Packing Add. (Base) (NOT REPLACEMENT ITEM) |
| S4 | SPAKLA006WJZZ | AE | N | J | Joint, x5 (NOT REPLACEMENT ITEM) |
| S5 | SPAKPB923WJZZ | AY | N | V | Wrapping Paper (NOT REPLACEMENT ITEM) |
| S6 | SPAKWA006WJZZ | BY | N | V | Pallet (NOT REPLACEMENT ITEM) |
| S7 | SPAKXD906WJZZ | BG | N | V | Packing Form (Top) (NOT REPLACEMENT ITEM) |
| S8 | SPAKXD907WJZZ | BE | N | V | Packing Form (Bottom) (NOT REPLACEMENT ITEM) |
| S9 | SPAKXD908WJZZ | BB | N | V | Packing Form (Side) (NOT REPLACEMENT ITEM) |
| S10 | SPAKXD909WJZZ | AR | N | V | Front Pad, x2 (NOT REPLACEMENT ITEM) |
| S11 | SSAKA0005PEZZ | AA | | J | Polyethylene Bag (NOT REPLACEMENT ITEM) |
| S16 | TLABV0182AJZZ | AB | | J | Case No Label (NOT REPLACEMENT ITEM) |
| **[5] SERVICE JIG (USE FOR SERVICING)** | | | | | |
| N | QCNW-C222WJQZ | AW | | J | Connecting Cord L=1000mm 80pins, LCD Control Unit to LCD Panel Unit, x2 |
| N | QCNW-M539WJQZ | BC | | J | Connecting Cord L=1200mm 24-24-4pins, POWER Unit to LCD Control Unit/Main Unit (PD) |

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YK. DS

SHARP CORPORATION
Digital Information Appliance Group
CS Promotion Center
Yaita,Tochigi 329-2193, Japan